PD-ABN-670

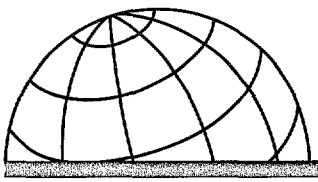
HILLSIDE AGRICULTURE PROJECT 92837

FINAL EVALUATION

Submitted to:
United States Agency for International Development/Jamaica
Contract Number: LAG-4200-I-00-3056-00

Submitted by:
Tropical Research and Development, Inc.
7001 S.W. 24th Avenue
Gainesville, Florida 32607

February 7, 1997



HILLSIDE AGRICULTURE PROJECT

FINAL EVALUATION

By:
John Lichte
Thomas Armor
William Fiebig
Marlene Tomlinson

Submitted to:
United States Agency for International Development/Jamaica
Contract Number: LAG-4200-I-00-3056-00

Submitted by:
Tropical Research and Development, Inc.
7001 S.W. 24th Avenue
Gainesville, Florida 32607

February 7, 1997

TABLE OF CONTENTS

ANNEXES

4

ACRONYMS

ACB	Agricultural Credit Bank of Jamaica
ADA	Association of Development Agencies
ASSP	Agricultural Support Services Projects (EEC, World Bank)
CARDI	Caribbean Agriculture Research and Development Institute
CATIE	Centro Agronomico Tropical de Investigacion y Ensenanza
CBO	community-based organization
CIB	Cocoa Industry Board
	Coffee Industry Board
CIDA	Canadian International Development Agency
CFDC	Cocoa Industry Development Company
CIDCO	Coffee Industry Development Company
CRIES	Comprehensive Resource and Evaluation System (Project)
DEMO	Development of Environmental Management Organizations (USAID)
EEC	European Economic Union
EFJ	Environmental Foundation of Jamaica
ENACT	Programme for Environmental Action (CIDA)
EU	European Union
FAO	Food and Agriculture Organization
FIDCO	Forestry Industry Development Company
FSCD	Forestry and Soil Conservation Department (MOA)
FISH	Foundation for International Self Help
GIS	Geographic Information System
GOJ	Government of Jamaica
HAP	Hillside Agricultural Project
HFSP	Hillside Farmers Support Project
ICRAF	International Center for Research on Agro-Forestry
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IICA	Inter-American Institute for Cooperation in Agriculture
IRDP	Integrated Rural Development Project
JADF	Jamaica Agriculture Development Foundation
JAMPLES	Jamaica Physical Land Evaluation System
JAS	Jamaica Agricultural Society
JCDT	Jamaica Conservation and Development Trust
JET	Jamaica Environmental Trust
JLA	Jamaica Livestock Association
LMC	local management committee
MINAG	Jamaican Ministry of Agriculture
MIS	Management Information System
MOA	Ministry of Agriculture

MOH	Ministry of Health
MYADP	Morant-Yallahs Agricultural Development Project
NDFJ	National Development Foundation of Jamaica
NEST	National Environmental Societies Trust
NFAP	National Forestry Action Plan
NGO	non-governmental organization
NRCA	National Resources Conservation Authority
NRCD	Natural Resource Conservation Division (MOA)
NUCS	National Union of Cooperative Societies
PAMCP	Project Appraisal and Monitoring Corporation
PCC	Project Coordinating Committee
PID	Project Identification Document
PIL	Project Implementation Letter
PIO	Project Implementation Order
PIOJ	Planning Institute of Jamaica
PMO	Producer Marketing Organization
PMU	Project Management Unit
PS-MOA	Permanent Secretary-Ministry of Agriculture
PSA	Procurement Services Agent
PSOJ	Private Sector Organization of Jamaica
PVO	Private Voluntary Organization
RADA	Rural Agriculture Development Agency
RPPD	Rural Physical Planning Department (MOA)
SPIA	Sub-Project Implementing Agencies
TfT	Trees for Tomorrow (CIDA)
UNITAS	A Jamaican Non-Governmental Organization
USAID	United States Agency for International Development
WMU	Watershed Management Unit
WRA	Water Resources Authority

ACKNOWLEDGMENTS

Many people have contributed to the completion of this final evaluation of the Hillside Agriculture Project, Jamaica. We would like to thank Jane Ellis, JoAnn Feldman Lawrence, Gary Lewis, Kirk Dahlgren and David Attebury at USAID Jamaica for their assistance and support. We thank the Ministry of Agriculture and the Project Coordination Committee for their interest and support throughout the evaluation process. In particular, we want to thank Joe Suah, Norman Richards, and the Project Management Unit support staff for their support to the evaluation team and their patience with the evaluation team's questions during a period of intense activity preparing for project close-out. We also want to thank the Hillside Agriculture Project staff and sub-project managers for the benefit of their extensive experience and their willingness to contribute their time and energy to help us prepare a report which reflects the lessons learned during that experience.

1

EXECUTIVE SUMMARY

The purpose of this final evaluation of the Hillside Agricultural Project is to:

1. Assess project impact and performance toward achieving the project goal and objectives, as well as contribution to USAID's economic growth and environmental strategic objectives;
2. Assess the prospects for the Hillside Agriculture Project technologies' sustainability;
3. Identify lessons learned from the Hillside Agriculture Project experience; and
4. Identify potential activities for the future which might be developed based on the lessons learned and consistent with the Mission's environmental and economic growth strategies.

Tropical Research and Development, Inc. (TR&D) fielded a team from October 22 through November 27 to evaluate the Hillside Agriculture Project. Team leader John Lichte and team members Tom Armor, Bill Fiebig, and Marlene Tomlinson reviewed an extensive literature on the Hillside Agriculture Project. The team visited 10 of the 32 sub-projects, interviewing farmers, local management committee (LMC) members, and sub-project staff. They also interviewed representatives of numerous agencies and organizations which had some interaction with the project. Given the lack of quantitative data on project impacts, the evaluation relies heavily on previous assessments and the subjective impressions of the evaluation team members.

The Hillside Agriculture Project was very successful in reaching farmers and achieving outputs in a context in which prior hillside agricultural projects had been decidedly unsuccessful. The Hillside Agriculture Project successfully engendered 32 field level sub-projects and managed the flow of inputs to, and the activities of, those 32 diverse sub-projects. It effectively managed and distributed inputs, exceeding the expected outputs by improving perennial tree crop production on 18,000 farms and treating the equivalent of over 16,000 acres. Quantitative data on farm level production and productivity is not available to objectively assess changes in yields attributable to the Hillside Agriculture Project's activities. Use of national or regional production information as a proxy for the Hillside Agriculture Project impacts is not viable. Nationally, the marketed production of cocoa and the marketed production of coffee from lowland cooperatives have stagnated and declined over the life of the project. Cocoa and coffee production in some of the parishes and coop groups in which the Hillside Agriculture Project has been active have increased, but in others it has declined. The Hillside Agriculture Project is credited with helping rejuvenate small farmer production of these traditional export crops and helping production return to normal, after the disastrous effects of Hurricane Gilbert.

The Hillside Agriculture Project's clear focus on promoting perennial tree crops is both a great strength, but is also a weakness. In the absence of complementary programs, other aspects of hillside agriculture did not receive the attention necessary to improve. An argument can be made

that a more holistic approach to hillside agriculture and watershed management would have proved more advantageous for project beneficiaries and individual watersheds, even if fewer farmers and watersheds were affected. However, the Hillside Agriculture Project success in impacting a large number of beneficiaries and watersheds is directly linked to the concentration on limited objectives. The project design and Hillside Agriculture Project management made the decision to promote perennial tree crops as the clear priority among the many needs to sustainably improve hillside agriculture, and to stake project success on achieving that priority goal. The evaluation team recognizes this dichotomy and the need of every project or program to find a strategic balance between focus and breadth. The lessons learned recognize both the importance of this focus and areas where some strategic broadening might prove advantageous for other projects. The evaluation team does not mean to imply that the Hillside Agriculture Project management could have done everything suggested in these lessons learned. In several cases, the Hillside Agriculture Project was intentionally or inadvertently constrained by the project design, particularly the focused (limited) objectives.

Following the mid-term evaluation, USAID directed the Hillside Agriculture Project team to broaden its objectives to address the issues of program sustainability, involvement of women and youth, marketing (including processing and cottage industry), socio-economic monitoring and the development of a management information system. But the project was not redesigned to integrate these new objectives and the implementation team was devoted to the original project purpose. In the absence of such redesign, neither funding nor personnel was specifically devoted to addressing these objectives, and no strategic plan was formulated for how they would be achieved. Not surprisingly, the Hillside Agriculture Project had mixed success in achieving these added objectives.

The evaluation focuses on lessons learned from the Hillside Agriculture Project experience. Chapter 1 provides an introduction to the project and several pieces of background information necessary to understand the project. Chapter 2 details the evaluation purpose and methodology. Chapter 3 summarizes Hillside Agriculture Project accomplishments, and Chapter 4 assesses these accomplishments relative to the expectations stated in the project logframe. Chapter 5 assesses the appropriateness of the project design and addresses areas where some strategic broadening of project activities might have helped solve some of the problems or constraints encountered by the project and its beneficiaries (hillside farmers). The team reviewed project performance relative to the project objectives added following the mid-term evaluation. Chapter 6, the core of the evaluation document, presents the conclusions of the evaluation team and lessons learned for a number of issues which were raised in the evaluation scope of work, or during the course of the evaluation. Twenty three lessons learned from Chapter 6 are presented below:

Lessons Learned

1. A large project with a clear single focus lends itself very well to multiple sub-projects that are designed and implemented by the people most familiar with the

local conditions to be faced by a sub-project. A concerted effort needs to made to assure that local farmers are included and participate in this needs assessment and design process. Project management should be supported and encouraged to be responsive and flexible in dealing with emergent conditions and opportunities.

2. A large, multiple level, and decentralized effort such as the Hillside Agriculture Project does require independence from traditional Ministry implementation mechanisms which can be slow and cumbersome, and subject to arbitrary decisions about allocation of resources. An effective linkage to the obvious Ministry can be maintained through a Project Coordinating Committee (PCC).

3. Direct funding from USAID to the project will avoid delays and assure transparent accountability.

4. The PCC model is very effective for linking a complex project with USAID and host government officials without letting the project become 'captured' by a single host government agency. It is a good forum for resolving issues and sharing responsibilities between the donor and the recipient government while preserving a single line of accountability for project management. The membership should be kept small and directly relevant to the needs of the project --and should be reviewed periodically to assure this.

5. A project is unlikely to achieve additional objectives added mid-term, when no specific plan or program is developed to attain those objectives and no human or financial resources are dedicated to addressing them.

6. A project team dedicated to a set of objectives is unlikely to redirect funding and effort to new objectives which it deems less important than the original project purpose.

7. Sustainability should be defined for any project in its design phase. When the desired sustainable impact is clear, project priorities and resources should be aligned in the earliest phases of the project toward achieving that sustainability at project's end.

8. The integration of perennial trees into hillside farming and natural resource management systems makes an effective contribution to controlling erosion and providing watershed protection.

9. Hillside farmers in Jamaica have developed very diverse mixed cropping systems as a risk aversion strategy in response to fluctuating prices, market availability, and climatic changes.

10. To properly evaluate the best types of perennial tree cropping systems for hillside farmers, projects need to monitor farmer activities; establish social, economic, and environmental targets; and collect, aggregate, and present data to quantify what impacts have occurred.

11. The integration of a diverse mixture of perennial tree species into hillside farming systems along with improved management practices helps to increase production and minimize risk for limited resource farmers.

12. Hillside agricultural development activities should focus on the farmer's whole farming system, promoting annual and perennial crop production under mixed cropping patterns.

13. Hillside farmers will have a greater incentive to adopt better management practices and continue to use them under mixed cropping systems when it is likely that significant benefits will occur relatively quickly from the annual and fruit tree crops, and the perennial crops can be harvested as time and labor resources are available.

14. Without an effective information management system which facilitates the collection and use of reliable data to determine the results and impacts of hillside agricultural programs, it will be difficult to develop appropriate and economically-viable mixed cropping systems which are of interest to small hillside farmers.

15. The conditions under which a project operates may be as important to the success and sustainability of project activities as anything which the project does itself. Changes in these conditions can make it very difficult to assess the impact of the project.

16. It appears doubtful that the large input subsidies were either economically justified or necessary to attract the participation of hillside farmers. Many Jamaican farmers (although not necessarily the resource poor) are willing to participate in programs to invest in and increase the production of perennial tree crops even if the program requires a financial contribution from the participants.

17. The use of large grant subsidies for a very limited range of activities may be incompatible with the promotion of community participation in decisions about their priorities for development.

18. Farmers are willing to contribute financially to have access to marketing and input delivery services. Production activities are not likely to be successful unless those services are assured.

19. The sustainability afforded by community participation has a cost. A project needs to work with existing local institutions or devote resources to facilitate community development. The time and resources devoted to community development will delay and/or reduce the other outputs which the project can be expected to achieve.

20. While a project with a very limited focus may be more efficient in pursuing that specific objective, adhering to that strict focus may limit its effectiveness as a means of promoting community participation.

21. Knowledge and consideration of social characteristics can help projects identify potential unintended effects of policies, and help decision makers reduce the inadvertent exclusion of women and other groups from participation in project benefits.

22. The Hillside Agriculture Project's narrow focus on crop production and limited orientation towards marketing and post-harvest activities, caused it to miss an opportunity to increase the involvement of women in areas in which women traditionally have primary responsibility.

23. Parents play a key role in determining the circumstances which allow youth to participate in agricultural programs and promote their interest in farming. Like adults, youth need to receive sufficient economic benefits from their efforts that agriculture becomes an alternative worth considering, access to resources, and some independence in decision-making.

1.0 INTRODUCTION

The Hillside Agricultural Project was authorized February 23, 1987 with a planned seven-year length of project. Following the mid-term evaluation in June 1992, it was granted a three year no-cost extension to February 1997. It is loosely organized in three phases. Phase I, from February 1987 to March 1990, included project start-up and the identification of technologies to be disseminated. Phase II and III, from April 1990 to February 1994, and the project extension until February 1997 focused on the extension of the technologies identified during phase I.

The authorized funding level for the project included the following contributions:

USAID	$10,000,000
Government of Jamaica	721,000
Beneficiaries	2,625,000

The Government of Jamaica provided staff and the facility in which the project office was based. Sub-projects grantees were expected to provide a portion of the local costs of their activities, and hillside farmers contributed the labor for the tree planting and maintenance activities.

At the time of authorization, the exchange rate for the Jamaican dollar was J$5.46 per US dollar. In the nearly ten years which followed, the Jamaican dollar depreciated to J$ 40 per US dollar, and recently appreciated back to J$34 per US dollar. The increased purchasing power of the US dollar following depreciation provided the financial means to extend the project three years with no additional USAID commitment.

1.1 Project Objectives

The specific purpose of the Hillside Agriculture Project was to increase productivity and expand acreage of both export oriented and domestic use perennial crops in selected watersheds. The increase in agricultural production was targeted to create more productive employment of hillside residents, resulting in increased disposable income. The Hillside Agriculture Project was designed to contribute to the larger goal of increasing in the economic well-being of the residents of the hillside lands in a manner that promotes rational land use. More recently, as the USAID Mission changed to a strategic planning approach, the Hillside Agriculture Project has supported the strategic objective of increased participation for equitable economic growth by increasing the incomes of subsistence producers. It also contributes to the Mission objective of improved environmental management and protection through expansion of tree crops that provide permanent ground cover, through the extension of inexpensive soil conservation techniques such as gully plugs and contour stone, wood or grass barriers, and through the promotion of safe use of agricultural pesticides. While the project's initial emphasis was to improve farm incomes, in

recent years an orientation towards the mitigation of the environmental impacts of hillside farming has been strengthened.

The project strategy has three aspects: perennial cropping, improved technologies, and community participation. The Hillside Agriculture Project was designed to overcome the deficiencies of past projects (particularly the Integrated Rural Development Project) by focusing resources on increasing production and productivity of selected perennial crops. This was to be accomplished through a community based approach that focused on utilization of improved production technologies. It was expected that this would be a tremendous improvement over past projects by applying a simple project design, generating appropriate technologies, and incorporating the needs and suggestions of farmers in the design and implementation of projects in their own communities.

The Hillside Agriculture Project was designed to fund self-managing demand-driven sub-projects to promote the production and productivity of perennial crops by:

1. Providing sub-grants to groups to carry out sub-activities that are focused on the overall Hillside Agriculture Project strategy, are technically competent and technologically current, and have a sound strategy for community participation;

2. Providing technical assistance and training to persons engaged in project activities; and

3. Networking of individuals and groups involved in project activities through the sponsorship of workshops, the production of a newsletter, and maintenance of close contact with international and domestic sources of technological innovation for perennial crops.

The project originally promoted primarily cocoa[1] and coffee cropping systems in the Rio Minho and Rio Cobre watersheds. Following the mid-term evaluation in June, 1992, the geographical focus was broadened to include hillside locations throughout the eight eastern parishes of Jamaica, or approximately throughout the eastern half of the island.

A number of other objectives not specifically mentioned in the original Project Document were added in the Project Implementation Letter No. 79, dated October 5, 1992. These include:

[1] In Jamaica the term "cocoa" is used to refer both to the "cacao" (the plant or unprocessed cocoa) and "cocoa". Though technically incorrect, this report follows the Jamaican practice and uses the term "cocoa" to refer to both.

- Devote more resources to economically beneficial fruit trees and associated processing facilities;
- Focus more on topics of interest to women, particularly marketing, processing and cottage industry;
- Lead a cooperative effort to institute a permanent, self-sustaining system to provide technical assistance and possibly capital infusions to small tree-crop farmers;
- Become more actively involved in policy debates relating to the provision of technical assistance and other inputs to small farmers, but not commodity-pricing issues;
- Make a special effort to implement socio-economic data collection and analysis;
- Develop and implement a systematic, comprehensive and up-to-date management information system.

1.2 Background

Jamaica is particularly susceptible to watershed degradation because about 80 percent of the land is hilly or mountainous, with 75 percent having slopes of over 10 percent. Average rainfall is over 60 inches per year and rises to over 200 inches per year in the northeast. The hillside areas are characterized by steep eroded slopes, gorge-like valleys, intermittent streams with swift flows and floods of short duration. Steep slopes and high rainfall create an environment in which watershed degradation is a constant natural threat, even without the interventions of mankind. Watershed degradation is Jamaica's single most important environmental problem, the one that affects the largest number of people. Soil erosion leads to reduced agricultural productivity and reduced retention of rainwater by the soil, faster runoff, and more flooding.

These natural conditions are further aggravated by traditional agricultural activities and the cutting of natural forest which originally protected the hillsides. About half of Jamaica's land area is used for agriculture, and, in the absence of soil/water conservation and soil fertility enhancement practices, erosion related to agricultural activities is the principal cause of watershed degradation. Multiple cropping systems predominate on rugged hillsides where a large array of both annual and perennial crops are cultivated on most farms. Tree crops such as coffee, cocoa, coconut, banana, other fruit and even forestry species are typically grown in mixed stands and associated with annual crops, such as yams, potatoes, dasheen, red peas and other beans, peppers and other vegetable crops. Annual crops, grown in monoculture on the steep erodible lands, in response to market demand and food consumption needs, are responsible for much of the erosion and reduced soil fertility of the hillside farming systems.

The Hillside Agriculture Project is based on the following assumptions:

1. Natural forest cover which originally protected the hillsides has been greatly reduced, often to cultivate domestic (annual) food crops.

2. While the environmental protection provided by perennial tree crops may not be as good as natural forest, trees confer significantly more protection against watershed degradation than does the cultivation of annual crops. The soil is disturbed only rarely, the trees provide protection from the force of wind driven raindrops, tree roots hold soil in place, leaves and other debris protect the soil surface and slow runoff, and additions to soil organic content increase infiltration and soil fertility.

3. Jamaica has been unsuccessful at maintaining natural forest cover on the hillsides. Perennial trees, owned by individual farmers, yielding products of economic value, have a much better chance than natural forest cover of being retained because of farmers' needs to use the land to feed their families and generate income.

1.3 Lessons Learned from the IRDP Experience[2]

The Hillside Agriculture Project design was strongly influenced by negative results of the earlier Integrated Rural Development Project (IRDP), which was expected to serve as a blueprint for subsequent projects in watershed management and soil conservation. The IRDP project ran from 1978 to 1984 and cost $22.2 million. It focused on the rehabilitation of the Pindars River and Two Meetings watersheds in the Cristiana area. The two goals to which the project was expected to contribute were:

- Improve the standard of living of farmers in Jamaica by increasing income and providing improved roads, housing, electricity, etc.; and

- Establish an agricultural production model that could be replicated on small hillside farms. This model was to be based on continuous multiple cropping techniques suitable for land that was terraced or treated with appropriate soil conservation measures.

The specific purposes of the project were to:

- Increase agricultural production in the Pindars and Two Meetings watersheds;

[2] This section draws heavily from the 1995 CDIE study, Sustainable Agriculture and the Environment: Jamaica Case Study.

- Control soil erosion in the two watersheds; and
- Strengthen the human resource capability of the Ministry of Agriculture.

IRDP approached soil conservation through the construction of terraces, ditches and waterways, often using heavy earth moving equipment on difficult terrain. It also promoted the reforestation of land with slopes over 25 percent, the conversion of farm land to pasture, and the construction and rehabilitation of access roads. Technical strategies included the following:

- On slopes ranging from 7 to 25 degrees:
  - Bench terraces were built and planted with domestic food crops; and/or
  - Contour ditches were constructed and perennial tree crops were planted on the contour between the ditches. Trees were planted in individual basins to protect and nurture the plants.
- On orchard terraces, a series of flat terraces separated by grass covered slopes, were built on land with slopes of 25-30 degrees and planted to perennial crops.

Waterways were treated with grass, stone, concrete, masonry or gabion channel protection. Steeper slopes were planted to pasture or reforested.

The cropping component of the IRDP hillside model was based on continuous multiple cropping of land which had been terraced or otherwise treated for soil conservation. Important elements of the production model included the use of optimal intercropping, fertilizers, chemical sprays to control pests and diseases, and continuous mounds for yam cultivation.

The IRDP approach of treating entire hillsides or mini-watersheds required the participation of all of the farmers with land on the treated area. The IRDP extension approach had two major components. One officially consisted of an educational campaign which was sufficiently comprehensive to enlist 100 percent participation. The other consisted of distributing cash subsidies in excess of normal wage rates to participants who worked on building terraces. The subsidy bought community acquiescence. The top-down approach failed to achieve grass roots participation, particularly in any community process of defining problems and developing priorities.

The IRDP project had very limited impact. The technical strategies promoted were not acceptable to farmers. The project treated only a small percentage of the acres targeted for soil conservation work and the cropping system models were not adopted by farmers. Terracing with heavy machinery damaged topsoil or left unproductive subsoil exposed. Terracing on steep slopes significantly reduces the surface area available for cultivation, so terraces must be much more

productive to outweigh the loss in area cultivated. Terraces require regular maintenance and this labor expenditure increases production costs. The cropping systems proposed were not sufficiently productive to outweigh the loss of area and maintenance costs and were rejected by farmers. Within a few years, it was hard to find any trace of the terraces that had been so laboriously and expensively constructed. Some of the contour ditches and waterways were maintained, proving that farmers found them advantageous.

Many aspects of the Hillside Agriculture Project design are a direct reaction to elements which contributed to the failure of IRDP project. The IRDP focus on physical structures to control soil erosion was proven to be inappropriate and uneconomical. In reaction, the Hillside Agriculture Project design focused on expanding the use of perennial tree crops as an approach which protected watersheds, but had already proven of interest to farmers because of their income generation potential. The Hillside Agriculture Project chose to promote production technologies such as pruning, use of fertilizer, rat bait and other pesticides; and simple erosion control techniques for individual farmers/plots such as contour ditches, contour barriers (grass, stone, branches), gully plugs and individual tree basins. In contrast to IRDP's rigid application of technology and approach, the Hillside Agriculture Project processes were flexible, allowing trees to be intercropped and spread across a much larger surface area than the 1 acre targeted. Its use of multiple sub-projects allowed different institutions and approaches to implementation to be used in different areas. While the Hillside Agriculture Project continued to subsidize farmer participation, it refused to make cash payments and only contributed the inputs in kind (the physical inputs). Farmers were required to provide all of the necessary labor as their contribution to the undertaking, and were required to prepare fields before inputs would be provided. Finally, the Hillside Agriculture Project team tried to develop effective community participation by establishing local management committees to supervise implementation and select participants. Sub-project managers reported to these local management committees as well as to the Hillside Agriculture Project management and the implementing agency and received a check signed by the committee chairman.

1.4 Hurricane Gilbert

Hurricane Gilbert was a key event in the life of the Hillside Agriculture Project. Planting new acreage to tree crops was advancing rather slowly, having encountered a number of logistical problems such as the lack of availability of seedlings. Hurricane Gilbert damaged trees and tree crops across most of the area where the project operated and much of the rest of Jamaica. Resuscitating damaged crops responded directly to farmers immediate needs, was much less costly than planting, encountered fewer logistical constraints, and provided a rapid return on the farmers' limited investment. Cocoa and coffee were both grown by over 80 percent of the farmers, so the vast majority grew one or the other, or both. Resuscitation was low cost, the technology well established and relatively simple, and even many resource poor farmers who might have difficulty participating in planting activities could benefit from rehabilitating existing cocoa or coffee acreage. While there is some question about how many farmers would have

considered planting new acreage of coffee, or particularly cocoa, to be a priority, rehabilitating damaged crops to regain the income stream lost was definitely a priority for most farmers. While the Hillside Agriculture Project had proposed planting diverse tree species, it became evident that farmers already had diverse species in their mixed cropping pattern which could be rendered easier to harvest and more productive through resuscitation, or through cutting-back if they had not been damaged. While farmers or communities had little input in identifying or planning the project, the adjustments made by the Hillside Agriculture Project in response the production crisis caused by Hurricane Gilbert allowed a significant degree of alignment between the Hillside Agriculture Project's objectives and farmers' priorities.

2.0 FINAL EVALUATION PURPOSE AND METHODOLOGY

Initial work on this final evaluation of the Hillside Agriculture Project in November, 1996, is taking place 9 years and 9 months after the project agreement was signed between the Government of Jamaica and the United States Agency for International Development (USAID) on February 23, 1987. The purpose of this final evaluation is to:

1. Assess project impact and performance toward achieving the project goal and objectives, as well as its contribution to USAID's economic growth and environmental strategic objectives;

2. Assess the prospects for the sustainable use of technologies promoted by the Hillside Agriculture Project;

3. Identify lessons learned from the Hillside Agriculture Project experience; and

4. Identify potential activities for the future which might be developed based on the lessons learned and consistent with the Mission's environmental and economic growth strategies.

Project accomplishments are compared to the original logical framework (not revised) and the changing set of objectives which have been revised substantially since project inception. The evaluation attempts to distinguish between the assessment of the Hillside Agriculture Project *per se*, and some additional lessons learned within the broader context of the Hillside Agriculture Project experience and hillside agriculture in Jamaica. Although the Hillside Agriculture Project experience produced some lessons learned about this broader context, the Hillside Agriculture Project was not designed or expected to deal with all of the needs of hillside farmers.

This evaluation relies heavily on previous evaluations and assessments of the Hillside Agriculture Project, and the evaluation team's subjective impressions of the project. The project established an excellent system for monitoring project inputs and activities. But several consulting efforts to initiate impact monitoring and management information systems did not result in the establishment of such systems. The evaluation team has heard numerous anecdotal cases of project impact, but there is little quantitative data on which to base an objective evaluation. The team reviewed a rather extensive literature on the project. Some of the previous evaluations and assessments upon which this evaluation draws heavily include:

Koehn, Kenneth; Egbert Tai and Elsie LeFranc. 1989. Process Evaluation of the Hillside Agriculture Project in Jamaica. November 1989, DESFIL/DAI/TR&D/USAID Jamaica, Washington, D.C.

Caribbean Agricultural Communications Services Limited (CACS). 1992. The comparative analysis of the Hillside Agriculture Project sub-projects, final report. Revised June 1992. Hillside Agriculture Project, Kingston, Jamaica.

Tropical Research & Development, Inc. 1992. Impact evaluation of the Hillside Agriculture Project. Mid-term evaluation. June 1992, USAID/Jamaica, Gainesville, Florida.

CDIE. 1995. Sustainable agriculture and the environment: Jamaica case study. USAID working paper No. 216. May 1995, Center for Development Information and Evaluation, USAID, Washington, D.C.

Data Bank. 1995. Hillside Agriculture Project: Report on the survey of phased out sub-projects, June-September 1995. Data Bank and Evaluation Division, Ministry of Agriculture and Mining, Kingston, Jamaica.

Data Bank. 1996. Hillside Agriculture Project: Report on the survey of on-going projects. DRAFT. Data Bank and Evaluation Division, Ministry of Agriculture and Mining, Kingston, Jamaica.

The evaluation team interviewed USAID representatives, the Hillside Agriculture Project management staff, members of the Project Coordinating Committee, members of the commodity boards, officials in the Ministry of Agriculture, representatives of other agencies with an interest in the project or rural development, and other donors. While many visits were made by only a portion of the team members, the team met frequently to exchange experiences and discuss issues which had been raised. The interview schedule was planned together so team members had a chance to express their information needs with regard to different sources. A short interview guideline was established to help orient the team and insure that each interviewee was asked about project impacts, factors contributing the success of activities/components/sub-projects, and lessons learned. The team visited a sample of 10 field level sub-projects, chosen to provide a cross-section of the 32 field level sub-projects supported by the Hillside Agriculture Project. Criteria used to select the sample included:

1. Degree of perceived success
2. Size of sub-project
3. Stage of development (Phased-out vs. continuing sub-projects)
4. Type of implementing agency (NGO, government agency, commodity board, etc.)
5. Existence of local community organization prior to sub-project activity
6. Experience of sub-project manager (some managers of phased-out sub-projects are managing newer projects)
7. Crop focus and degree of diversification

Interview guidelines were elaborated and discussed by the team members to help insure that questions of interest to the different team specialists were asked. Team members interviewed farmers, local management committee members, farm store managers, sub-project staff, implementing agency personnel, local representatives of development related institutions and non-participants. The entire team visited two of the sub-projects considered most successful by both the Hillside Agriculture Project staff and previous assessments to establish a standard against which to compare the others. The team then split into two sub-teams to visit the other eight projects. At the end of the week of field visits, the team spent a day preparing and discussing evaluation issues which were raised by the various interviews and sub-project visits.

The evaluation team presented preliminary results to the PCC and USAID, and later to the Hillside Agriculture Project staff, sub-project managers, PCC members, USAID personnel and invited guests at the annual the Hillside Agriculture Project retreat. The Hillside Agriculture Project sub-project managers remarked that this was the first of the many evaluations and assessments which had presented preliminary findings back to them and provided an opportunity for them to comment on, and have input into, the evaluation results. This feedback allowed the evaluation team to collect additional information, correct mistaken impressions based on a limited sample, and improve the evaluation report. The sub-project managers, the Hillside Agriculture Project staff and PCC members all agreed that the Ministry should incorporate a similar activity into the evaluation of other projects within the MOAM. Many of the lessons learned reported here were articulated by the Hillside Agriculture Project staff and sub-project managers and validated by the evaluation team and other project participants and observers.

3.0 THE HILLSIDE AGRICULTURE PROJECT ACCOMPLISHMENTS

The Hillside Agriculture Project has served as a mechanism for USAID to grant funds directly to self-managing sub-projects that promote the production and productivity of perennial tree crops. The Hillside Agriculture Project has provided funding and support to a total of 35 sub-projects, 32 field level sub-projects promoting perennial tree crops, two sub-projects focused on institutional strengthening, and a sub-project which funded an baseline study in one of the sub-project areas. The sub-projects were implemented, most achieved the majority of their objectives, funds were tracked, used for their intended purpose, and a full accounting of their use is available. This alone is a significant accomplishment, and something many similar projects have not achieved.

The two institutions which received strengthening are the Jamaican Agricultural Society (JAS) and the Rural Physical Planning Division (RPPD) of the Ministry of Agriculture (MOA). The first six field level the Hillside Agriculture Project sub-projects began operation a little over eight years ago, the most recent sub-projects have barely been in operation two years.

3.1 Agricultural Production Effects

The 32 field level sub-projects have provided free inputs such as tree seedlings, fertilizer, pesticides, rat bait and hand tools to 18,000 farmers across the eight eastern parishes of Jamaica participating in the Hillside Agriculture Project activities. The funding available to provide free inputs was limited and in many sub-project areas only a portion of the target communities could receive these benefits. However the sub-projects provided extension services and training to any farmers willing to participate in the use of improved technologies. This training has been particularly effective for techniques like the resuscitation of cocoa and coffee after Hurricane Gilbert, and for pruning fruit trees to produce more easily harvested fruit of better quality. The Data Bank studies show that 20 percent and 35 percent, respectively, of non-participating farmers are using techniques promoted by the Hillside Agriculture Project in areas where older projects are phased-out, and in areas where there are continuing projects.

The 18,000 participants in the Hillside Agriculture Project sub-projects have planted 3.35 million and resuscitated 3.16 million cocoa, coffee and other miscellaneous fruit and timber trees as a direct consequence of the Hillside Agriculture Project funded activities, as seen in Table 1:

Table 1. Hillside Agriculture Project, Jamaica, sub-project results from planting and resuscitating perennial trees as of September, 1996.

Sub-Projects	Benefi-ciaries	Land Area Treated (ha)	Cocoa Trees		Coffee Trees		Timber	Other Trees
			Planted	Resuscitated	Planted	Resuscitated	Planted	Planted
Phased out	9,109	2,625	648,620	1,628,705	343,867	502,021	58,839	249,905
On-Going	8,853	4,148	308,546	453,623	1,392,042	580,199	91,742	218,665
Total	**17,962**	**6,773**	**957,166**	**2,082,328**	**1,735,909**	**1,082,220**	**150,581**	**468,370**

Source: The Hillside Agriculture Project Monthly Report, September, 1996.

In terms of area impact, the Hillside Agriculture Project has planted nearly 2400 acre equivalents of cocoa and over 1900 acre equivalents of coffee. It has resuscitated 5200 acres (equivalents) of cocoa and 1200 of coffee. Other tree species planted and resuscitated would add perhaps the equivalent of another 6000 acres or more. The total of over 16,000 acres treated compares favorably with the relevant EOPS of 6000 acres planted.

No quantitative measurement of changes in the yield of cocoa, coffee or other types of fruit are presently available. Anecdotal information from individual farmers indicates that their yields have increased from 1.5 to as much as 4 times previous levels. While production increases from increased acreage and yields have logically led to increased income (in the absence of outright declines in commodity prices), no quantitative assessment of such income change is available.

3.2 Environmental Effects

The most important environmental impact of the Hillside Agriculture Project has been the significant watershed protection afforded by the increased presence of perennial tree crops on hillsides. This presence appears relatively more sustainable than natural forest, given the economic value of the fruit and commodities which these trees bear. The tree crops also provide significantly more protection against watershed degradation than do annual crops.

The Hillside Agriculture Project has promoted and realized a number of other physical and biological measures to prevent soil and water erosion on hillsides. These measures are detailed in Table 2. Although the numbers may be modest, the accomplishment is impressive given the labor shortages and competition for labor among farm activities. Since such measures do not result in rapid benefits to farmers, they are typically not high on farmers' lists of priorities.

Table 2. Hillside Agriculture Project, Jamaica, sub-project results from soil and water conservation activities as of September 1996.

Sub-projects	Soil and Water Conservation Measures					
	Gully Plugs (#)	Plant Basins (#)	Wood Barriers (m)	Trenches (m)	Stone Barriers (m)	Grass Barriers (m)
Phased out	1,000	3,483	43,734	60,672	0	27,439
On-Going	3,696	555,061	42,517	29,463	4,480	11,252
Total	**4,696**	**558,544**	**86,251**	**90,135**	**4,480**	**38,691**

Source: The Hillside Agriculture Project Monthly Report, September, 1996.

3.3 Training

The Hillside Agriculture Project also has spectacular achievements in the area of training. The Hillside Agriculture Project has held more than 7000 small group training events for hillside farmers, primarily in the use of improved technologies, as detailed in Table 3. These group sessions for participants and non-participants alike consist of field days, group meetings and demonstrations. The numbers of participants in each training session is not presently available, but will obviously exceed the objective of 1000 persons trained by a wide margin. No measure of impact other than technology adoption is readily available, however, numerous people commented that the Hillside Agriculture Project had increased the knowledge of conservation techniques and the awareness of environmental problems on the hillsides. In addition, the monthly meetings for sub-project staff and the quarterly visits by the Hillside Agriculture Project staff to sub-project sites, all included some element of training.

Table 3. Type and number of training sessions completed by the Hillside Agriculture Project as of September, 1996. [Some sub-project data not available]

Technology/Soil Conservation Practice	Number of Training Sessions
Plant propagation	515
Improving plant densities	774
Fertilizer application	1001
Shade management	780
Pest control	802
Weed control	469
Tree resuscitation	839
Soil conservation	450
Trenches	226
Grass barriers	464
Stone barriers	152
Terraces	34
Gully plugs	232
Individual plant basins	15
Community development	193
Other	240
Total	**7186**

Source: The Hillside Agriculture Project Monthly Report, September, 1996.

4.0 PROJECT PERFORMANCE RELATIVE TO PROJECT DESIGN

The Hillside Agriculture Project has accomplished most of, and in many cases much more than, what was expected of the project in terms of outputs detailed in the original project logical framework. No targets were set for the number of sub-projects or the number of beneficiaries, but the Hillside Agriculture Project's performance in funding 32 field level sub-projects which served 18,000 direct beneficiaries and treated the equivalent of over 16,000 acres, is very impressive.

Although no numbers are available, the sub-projects definitely served a large number of indirect beneficiaries as well. Where the Hillside Agriculture Project helped strengthen local coops or existing local development efforts, as in Frankfield or Long Road, the entire population of the local communities benefit in some measure. Many non-participants were able to benefit from the increased extension effort in the area, and particularly to learn new production and environmental protection techniques from the more than 7000 small group training events held by sub-projects. Data Bank surveys indicate that 20 percent of non-participants in early sub-projects, and 35 percent of non-participants in more recent sub-projects, are using at least one technique promoted by the Hillside Agriculture Project sub-projects. In some areas like Manchester, practically every farmer with coffee or cocoa trees was apparently included as a beneficiary. Other indirect benefits were provided to area residents through the support for input delivery systems, particularly farm stores and tool pools, and support for arrangements to market or process farm produce. To the extent that the Hillside Agriculture Project activities have helped reduce siltation and improve water quality downstream, thousands of people have benefited from those improvements.

In looking at a 20-35 percent adoption rate of new technologies, one must remember that while the initial sub-projects began eight years ago, the typical sub-project in any one location was only 2.5 to 3 years in length, and several as short as 15 months. In many cases, the level of extension services has returned to very low levels following the phase-out of the sub-project.

Establishing a substantial new or additional tree population is typically a rather high cost investment (depending how it is done), and was made affordable to direct beneficiaries by providing most of the non-labor inputs (seedlings, fertilizer, tools, pesticides, rat bait) under highly subsidized conditions (100 percent subsidies in most sub-projects). The fact that subsidies made these investments affordable to beneficiaries does not change the fact that they may have remained unaffordable to many other small farmers who did not have access to the subsidized inputs. The resuscitation (pruning or cutting back) of existing trees provided techniques which were more economically feasible for non-participants. However, even here, the packages promoted by commodity boards included the use of costly inputs such as fertilizer, pesticides and rat bait. Many small farmers undoubtedly found the entire package rather expensive without subsidies and probably limited their adoption to the cheaper techniques within the package. So while there is no question that the known technologies are capable of increasing production on the hillsides, the question of which techniques are economically viable (without subsidies) does not

seem to have been thoroughly explored. It would have been helpful if research activities had focused at least in part on determining the returns farmers could expect under on-farm conditions from different components within the technical packages. The evaluation team has not found any source of information, whether from the commodity boards, IICA's the Hillside Agriculture Project financed research, or the MOAM, that specifies the economic returns from individual techniques.

The Hillside Agriculture Project has provided important elements of a successful strategy or model which can be applied to other hillside lands in Jamaica. Several new projects, including the European Economic Community funded Morant-Yallahs Agricultural Development Project and the proposed World Bank Agricultural Services Support Project borrow important elements from the Hillside Agriculture Project, including the project management unit structure and funding of sub-projects and adoption of all three of the Hillside Agriculture Project's strategies (promotion of perennial tree crops, improved technologies and community participation). Some of the Hillside Agriculture Project's more successful experiments in marketing, input supply and enforced savings strategies may also be tested. While the new projects will not be implemented in the same manner as the Hillside Agriculture Project in other respects, if the Hillside Agriculture Project were redesigned today there would be several changes based on the lessons learned during that 10 year experience.

The Data Bank survey of on-going projects indicates that 35 percent of farmers taught some technique learned from the Hillside Agriculture Project to non-participating neighbors. The Hillside Agriculture Project also used demonstration plots and training days where a group of participating and non-participating farmers would apply a technique to an individual farmer's plot as a means of learning how to use the technique. Farmers actively participated in the adoption and dissemination of appropriate cropping patterns and techniques.

The Hillside Agriculture Project was less successful in promoting the use by small farmers of contractual arrangements to market produce. The project design seemed to assume that (commercial) agro-processing would develop in the rural areas where tree crops were produced. For the most part, this has not happened and agro-processing has largely remained in urban areas. In most cases there was no one to contract with in the sub-project areas. Only one of the 32 sub-projects was organized around an agro-processor (the North Clarendon Processing Co.). Even in those areas near urban markets, marketing was often a constraint for the elderly who found travel difficult. Marketing of an increasing volume of produce typically required the transportation of produce to markets, stores, tourist hotels and processors in urban centers. The Hillside Agriculture Project design did not foresee the need to provide transportation and marketing services for the expansion of production of fruit crops. The most successful sub-projects developed a system of cooperative transportation and marketing which allowed the sale of substantial volumes of produce at a reasonable price. The Hillside Agriculture Project did not insist that the sub-projects develop marketing systems for produce not handled by commodity

boards, and most sub-projects did not do so. Many of the sub-projects would have been more successful if the Hillside Agriculture Project had promoted such marketing development.

Perhaps the most exciting aspect of the Hillside Agriculture Project's program has been the results achieved by pruning, grafting and otherwise improving the quality and production of domestic crop tree species. However these domestic crop programs have not been a major focus of the Hillside Agriculture Project efforts until recent years, and have often been constrained by limited marketing opportunities in rural areas. Data is not available to quantify production increases in either domestic or export crops.

5.0 APPROPRIATENESS OF PROJECT DESIGN (PERFORMANCE OF THE HILLSIDE AGRICULTURE PROJECT IN THE BROADER CONTEXT OF IMPROVING HILLSIDE AGRICULTURE)

Many aspects of the Hillside Agriculture Project design were very insightful and have allowed the Hillside Agriculture Project to be a successful project. The Hillside Agriculture Project was among the early projects to use the project management unit structure and fund multiple sub-projects. This decentralized design and implementation concept provided great flexibility and allowed people closest in time, knowledge and location to make decisions. Some sub-projects were more successful than others, but overall the performance was good.

The Hillside Agriculture Project was designed to have an institutional location linked to the MOAM but outside of the ministry's institutional structure and direct lines of authority. Answering to the Project Coordination Committee (PCC) provided a significant degree of independence and flexibility which would not have been available if it had to follow all of the rules of the bureaucracy. The PCC also served as a means of resolving issues and sharing responsibilities between the donor and the government agency under whose auspices the project functioned while preserving a single line of accountability for project management.

The Hillside Agriculture Project also received funding directly from USAID, rather than indirectly through the circuitous system of the Treasury and Ministry of Finance. Avoiding the delays and problems associated with receiving funding from the Treasury allowed the project to move rapidly, meet its financial obligations, and maintain the confidence of participants. The MOF and MOAM have indicated that projects will not be allowed to receive funding and operate outside the Ministry systems in the future, but several recent donor projects reported to the evaluation team that they are structured in the same manner as the Hillside Agriculture Project. Both the institutional location and funding arrangements were key elements in the Hillside Agriculture Project having the flexibility to respond quickly and meet the separate needs of 32 different field level sub-projects.

The Hillside Agriculture Project strategy of integrating perennial tree crops into hillside agriculture and natural resource management systems makes an important contribution to erosion control and watershed protection, in addition to increasing agricultural production and family incomes. The fact that these trees have economic value means that they are much more likely to remain on the hillsides than natural forest and not be replaced by annual food crops. Stands of tree crops significantly increase the value of the property if the family should desire to sell the land at some point.

The strategy of beginning project activities with a focus on cocoa and coffee production was a reasonable choice. Marketing for these traditional export crops was assured by the commodity boards, as well as support with regard to research, appropriate technology and extension advice. The strategy to diversify into other tree crops posed more problems. Marketing systems did not

exist for many of these products. The design apparently assumed that agro-processing would develop in rural areas and would absorb these products. But that did not happen. In most areas, successful production of these products on an expanding scale meant produce had to be transported to urban areas for sale. The Hillside Agriculture Project design did not foresee the need for such marketing activities or make any provision for them. Frequently, the availability and transportation of production inputs to the farm gate was a problem as well. Here the project promoted tool pools and supply stores through the sub-projects, but did not have or promote any plan to facilitate transportation between the town center and the farms.

It seems that the project design expected that the first phase of the project would be more oriented towards testing technologies than was the case. For the most part, project management chose existing technologies which were already proven, and maintained a strong extension orientation throughout the project. IICA received a contract to do a sub-project in which it seemed to focus on research while the Hillside Agriculture Project seemed to expect extension results. The differences were exacerbated by IICA's tendency to initiate long-term research under a short-term contract, counting on the contract being renewed. Yet a few of these traditional techniques applied to new crops were considered to be new and exotic, such as cutting back or pruning overgrown fruit trees and grafting. The techniques provide production increases, and have stimulated demand (along with the free inputs) to maintain or increase the portion of tree crops in many farmers production systems.

Farmers would have benefited from a more holistic approach to hillside agriculture than was provided by the Hillside Agriculture Project. A holistic approach is necessary to address the many needs of hillside farmers and environmental protection on Jamaican hillsides. This does not necessarily mean that all of the components of a more holistic approach should have been provided by a single project. Projects with a strong focus tend to be easier to manage, operate more efficiently, and in the end, are more effective than projects which lack focus. The failure of most Integrated Rural Development Projects demonstrates this principle. Several complementary projects might well be more effective than a single project, provided there is some coordination of efforts. Unfortunately, it is not clear that the holistic view or the complementary components exist in the case of Jamaican hillside agriculture.

In many cases, particularly for the majority of small farms under 2 acres, domestic food crops are a higher priority than perennial tree crops. The resources of small farmers are scarce and their needs are immediate, so they have difficulty waiting a few years for a return on their investment. The domestic food crops feed the family and provide income in the short-run. Between an increasing population and devaluation, Jamaica is more dependent than previously on these domestic food crops, and prices have increased rapidly as a consequence. Furthermore, these domestic food crops and the manner in which they are cultivated are probably the primary cause of soil erosion and watershed degradation. But technical assistance to improve the productivity of these crops and reduce their negative environmental consequences is not readily available to hillside farmers. Environmentally, it would be wonderful if they could be replaced by perennial

tree crops and many of the perennial tree species do contribute to the national food supply. But in light of the increasing food needs of Jamaica and the increasing cost of imports, it seems unlikely that demand for yams, dasheen, beans and vegetables, etc. will decline any time soon.

The success of the Hillside Agriculture Project's own strategy to diversification perennial tree crops was constrained by the fact that transportation and marketing services to facilitate the sale of these products in population centers was not available. The Hillside Agriculture Project management was pleased with the results when community organizations implementing sub-projects took this role upon themselves, but did not push or facilitate other sub-projects to copy their success. In some areas, even the success of the Hillside Agriculture Project's core strategy of promoting perennial tree crops was limited by the availability and means to transport production inputs. Many farmers found it difficult or expensive to get inputs from the coop, store or distant nursery to the farm. Again the Hillside Agriculture Project management was pleased with the results when community organizations implementing sub-projects took this task upon themselves, but did not push or facilitate other sub-projects to copy their success. Institutional sustainability of the sub-project activities is constrained by the lack of support services for coops and community development in local communities.

The Hillside Agriculture Project design achieved only limited success with regard to community participation. The project design often mentions community participation, but provided no plan of action for achieving that participation, nor devoted any staff or financial resources to achieving it. The project design assumed that the Jamaica Agricultural Society would provide an institutional base for community participation. The Jamaica Agricultural Society had been the primary local level agricultural institution for nearly 100 years and was the dominant channel for agricultural extension activities. The rapid decline of the Jamaica Agricultural Society required that project implementors find alternative community organizations to serve as the basis for community participation. While some communities had church-based or other common interest groups, many did not have viable organizations upon which project activities could be based. The approach developed by project management to fill this void was to create local management committees (LMC) that selected participants, and help facilitate input delivery and, training and other extension services. The sub-project staff were officially employed by the LMC and received a check signed by the committee chairman.

However, most LMCs folded almost immediately after each sub-project phased out. LMC tasks were so focused on project activities that they seem to have had little reason to continue once the project ended. They were not oriented towards identifying priorities, constraints and opportunities for the community in a broader context. To the extent that activities continued, it was because a community based organization with this broader mission already existed in the community and provided support for the Hillside Agriculture Project initiatives. The use of this broader definition of community development/participation has primarily become popular with increased emphasis on sustainability in the years since the Hillside Agriculture Project design. Often it is obvious that project strategies and activities will only be maintained if local community

based institutions take responsibility for the community's development. Project designers may not have expected much more from community participation than effective implementation of the projects perennial tree crop strategy. But today's perception of community participation is one in which target populations participate in project identification, planning, implementation, monitoring and evaluation. The Hillside Agriculture Project's narrow focus on perennial tree crops and the use of large grant subsidies for a narrow range of activities, did not encourage and may have inhibited the LMC from developing this broader perspective.

Following the mid-term evaluation a number of additional objectives were assigned to the Hillside Agriculture Project. This was tacit recognition that the project design was weak in the areas in which objectives were added. This included, targeting the involvement of more women and youth, focusing more on marketing, processing and cottage industry, becoming more involved in policy debates, program sustainability, making a special effort to implement socio-economic data collection and analysis, and the development of a comprehensive management information system. However, without a project redesign or the assignment of human and financial resources devoted to achieving specific objectives, adding these objectives had little impact on the project.

The Data Bank statistics indicate that the percentage of women participants in the Hillside Agriculture Project's phased-out sub-projects ranged from 17 to 32 percent and averaged 22.5 percent. Seven continuing sub-projects report that women's participation ranges from 17.7 to 32 percent with an average of 24.4 percent. Authorities in the MOAM indicate that this level of participation by women is much higher than any other project supervised by the Ministry. This is a substantial achievement and should be recognized as such. However, the project probably could have involved many more women with some relatively minor adjustments in selection criteria and participation rules. Since most small farms (<2 acres) do not produce substantial quantities of a single product, criteria limiting participation to farmers producing more than, for example, 6 boxes of cocoa of coffee, often had the effect of excluding small farmers. Since women are disproportionately represented among small, resource poor farmers (<2 acres), such criteria had the effect of excluding a disproportionately large portion of women. Rules which prevented the spouses of project participants from receiving free inputs also tended to prevent women farmers who are not household heads from increasing the value and productivity of their personal plots.

Traditionally, women have a strong role in the marketing and processing of commodities produced on the farm. Steps to relieve the constraints with regard to transportation and marketing services for diverse tree crop products would likely have benefitted women disproportionately. The Hillside Agriculture Project missed an opportunity to both improve prospects for the sale and price of targeted tree crops, and at the same time involve more women.

The Hillside Agriculture Project management did recognize the need to increase the participation of youth in agricultural activities. National statistics from several sources indicate that the average age of farmers is in the range of 54-58. Farming is considered to have low status, and

many youth prefer urban jobs and move to urban areas as soon as they can (often with their parents' blessing and encouragement). Many adult farmers claim that their children have no interest in farming and even refuse to do farm tasks. However, most parents expect the children to do hard physical labor without any monetary return. Parents have often been unwilling to reward youth for their labor or allow youth to be responsible for and receive the benefits from a small plot of land. The Hillside Agriculture Project has attempted to train and involve youth in agriculture through a variety of programs including support for school garden programs, distributing seedlings to youth, tree growing contests, young farmer groups and programs. In working with adults it has attempted to change parents attitudes about allowing youth to make some money from farming, make decisions, and gain experience from managing small plots of land. The numbers are not all in, but 11 of the latter (continuing) sub-projects had youth participation ranging from 6 to 50 percent, and averaging nearly 24 percent. The evaluation team has no numbers from other projects with which to compare these results, but in a country where 'youth don't do farming", this seems to be a remarkable success.

The project design called for the collection of baseline data, project monitoring and a management information system. No M&E plan was detailed until after project implementation began, and project management has had difficulty implementing this aspect of the design. Three different consultancies attempted to address the collection of socio-economic data and establishment of a management information system. Each attempted to develop its own approach in isolation from previous efforts. Failing to reinforce each other or to identify simple and practical steps to move towards a management information system, none have been implemented.

One of the latter M&E efforts provided a survey instrument which was used by the Data Bank to do the survey of phased-out projects. This instrument did not consider or provide a comparison to the baseline studies implemented in two sub-projects, which were done early in the project. The Data Bank used a different approach in the survey of continuing projects, so again the Data Bank surveys of phased-out and continuing projects do not provide comparable information.

The assistant manager chosen for the project did not have the qualifications in monitoring and data management called for in the original terms of reference for that position. Thus the project had no individual with those qualifications to guide and serve as an advocate for improved monitoring and data management systems.

The project management avoided policy issues as being outside of its area of competency and potentially dangerous as well. It began to address sustainability, particularly in terms of youth involvement. It did not go far in addressing either economic sustainability (made difficult by the use of subsidized inputs), or institutional sustainability through a broader definition of community participation.

6.0 CONCLUSIONS AND LESSONS LEARNED

6.1 Hillside Agriculture Project Management and Institutional Location

6.1.1 Flexibility in the Management of the Hillside Agriculture Project

Conclusions

The Hillside Agriculture Project was designed with the intent that real activities, and ultimately the most important work, would be done at the local sub-project level. These sub-projects were designed and implemented by those peoples closest in time, knowledge and location to the real issues and needs of the target communities. Lessons learned by the Hillside Agriculture Project implementors were continually incorporated into new designs and implementation decisions. While some sub-projects were more successful than others, the over all the Hillside Agriculture Project performance was successful. This decentralized design and implementation concept worked as intended.

Great flexibility in decisions at both the Hillside Agriculture Project PMU level and the sub-project level was supported by the PCC and USAID. This proved to be an effective management and over sight policy. It was workable in many respects because of the clear and continuing project focus on perennial tree crop productivity.

While the Hillside Agriculture Project staff and implementing agencies participated directly in formulating these decentralized sub-project designs, the local farmers seem not to have been well incorporated into this process. (See later item re: Local Management Committees)

Lessons Learned

A large project with a clear single focus lends itself very well to multiple sub-projects that are designed and implemented by the people most familiar with the local conditions to be faced by a sub-project. A concerted effort needs to made to assure that local farmers are included and participate in this needs assessment and design process. Project management should be supported and encouraged to be responsive and flexible in dealing with emergent conditions and opportunities.

6.1.2 Institutional Location of the Hillside Agriculture Project

Conclusions

The institutional location for the Hillside Agriculture Project outside the direct line authority of the MOAM, yet very close to MOAM for most functional purposes seems to have worked quite well.

The PCC (discussed later) worked very well to support the Hillside Agriculture Project and provide the vital linkage to MOAM and other organizations for the Hillside Agriculture Project.

Funding directly from USAID to the Hillside Agriculture Project PMU, avoiding the delays and problems of the Ministry of Finance worked very well for the Hillside Agriculture Project.

Lessons Learned

A large, multiple level, and decentralized effort such as the Hillside Agriculture Project does require independence from traditional Ministry implementation mechanisms which can be slow and cumbersome, and subject to arbitrary decisions about allocation of resources. An effective linkage to the obvious Ministry can be maintained through a Project Coordinating Committee (PCC).

Direct funding from USAID to the project will avoid delays and assure transparent accountability.

6.1.3 Key Management Roles in the Hillside Agriculture Project

Conclusions

The Hillside Agriculture Project had the good fortune to have only two, very supportive, USAID Project Officers assigned to it over its ten year life. The fact that the first Project Officer had also been heavily involved in the design of the Hillside Agriculture Project assured an unusually smooth start-up for the project.

The Hillside Agriculture Project Project Manager seems to have been an excellent choice, as evidenced by his ten year tenure.

Lessons Learned

The quality and experience of both USAID Project Officers as well as that of a Project Manager is critical to project success, especially in a project like the Hillside Agriculture Project that requires much flexibility. Careful consideration and selection for these critical roles cannot be over estimated.

6.1.4 Functions and Effectiveness of the Project Coordinating Committee (PCC)

Conclusions

The PCC functioned as designed. It provided the requisite guidance, support and coordinating role for the Hillside Agriculture Project and linked the Hillside Agriculture Project functionally to the MOAM and GOJ.

Lessons Learned

The PCC model is very effective for linking a complex project with USAID and host government officials without letting the project become 'captured' by a single host government agency. It is a good forum for resolving issues and sharing responsibilities between the donor and the recipient government while preserving a single line of accountability for project management. The membership should be kept small and directly relevant to the needs of the project --and should be reviewed periodically to assure this.

6.1.5 Participation in Formation and Functioning of Local Management Committees

Conclusions

Participation by local farmers in the initiation, planning and implementation of sub-projects through LMCs was in reality very limited. LMCs functioned best when they were derived from an existing local community based organization.

Lessons Learned

Projects that look to community based organizations as critical mechanisms for local implementation must have the time, resources and skills available to undertake community development efforts. Alternatively, the project will need to adjust its expectations of true participation and long term sustainability potential.

6.1.6 Effect of Additional Project Objectives

Conclusions

A number of additional objectives were imposed on the Hillside Agriculture Project after the mid-term evaluation, but no redesign of the project was conducted. No project staff and no defined budget were assigned to specifically to obtain these objectives and no plan was elaborated to address them. With no human and financial resources assigned to these objectives and no plan for achieving them, they had only a marginal impact on the Hillside Agriculture Project.

Lesson Learned

A project is unlikely to achieve additional objectives added mid-term, when no specific plan or program is developed to attain those objectives and no human or financial resources are dedicated to addressing them.

A project team dedicated to a set of objectives is unlikely to redirect funding and effort to new objectives which it deems less important than the original project purpose.

6.1.7 Sustainability of the Hillside Agriculture Project Institutional Impact

Conclusions

The Hillside Agriculture Project will have little sustained institutional impact in most areas where it worked. The design of the Hillside Agriculture Project did not focus activities nor resources on this institutional development agenda.

Lessons Learned

Sustainability should be defined for any project in its design phase. When the desired sustainable impact is clear, project priorities and resources should be aligned in the earliest phases of the project toward achieving that sustainability at project's end.

6.2 Agriculture and Environment

6.2.1 The Hillside Agriculture Project Environmental Impact

Conclusions

The integration of perennial trees into hillside farming and natural resource management systems makes a very important contribution to erosion control and watershed protection.

Lessons Learned

The integration of perennial trees into hillside farming and natural resource management systems makes an effective contribution to controlling erosion and providing watershed protection.

6.2.2 The Hillside Agriculture Project Agricultural Impact

Conclusions

In contrast to many similar projects, the Hillside Agriculture Project has been very successful in promoting perennial tree crops on Jamaican hillsides. The project has helped 18,000 beneficiaries improve tree crop production on over 16,000 acres. Project outputs are evident and much appreciated by both the local farmers as well as by the implementing agencies, who in the case of the commodity boards, benefit from the increased volume of production.

Data which would allow project impacts with regard to increases in production and productivity to be quantified are not available. It does seem obvious that farm level production and farm incomes in areas where the project was active are higher than they would have been without the project.

Lessons Learned

Projects need to monitor, collect, aggregate and present data concerning project impacts in order to demonstrate what those impacts have been.

6.2.3 Promotion of Perennial Tree Crops

Conclusions

The Hillside Agriculture Project's strategy to promote resuscitation of farmers' existing perennial tree crops was very effective. It provided additional income quickly by improving productivity of these crops, while the planting of new trees contributes to income and family maintenance over the long-term.

These results can be attributed to the farmers familiarity with the types of perennial tree crops and improved management practices promoted by the Hillside Agriculture Project. The Hillside Agriculture Project was successful in increasing the production potential of land areas planted to cocoa and/or coffee, both in pure and mixed crop stands, and also provided a significant number of timber and non-traditional perennial tree crops to farmers which have good market potential.

The demand for non-traditional tree crop species shows that farmers are willing to adapt new management practices into their farming systems to include new cash crops as markets become available.

Lessons Learned

Hillside farmers in Jamaica have developed very diverse mixed cropping systems as a risk aversion strategy in response to fluctuating prices, market availability, and climatic changes.

Any project which has as its purpose to increase production of Jamaica's hillside farmers must ensure that farmers have access to transportation and marketing services.

To properly evaluate the best types of perennial tree cropping systems for hillside farmers, projects need to monitor farmer activities; establish social, economic, and environmental targets; and collect, aggregate, and present data to quantify what impacts have occurred.

6.2.4 Improved Technologies

Conclusions

The Hillside Agriculture Project's promotion of improved technologies has made a significant contribution to the potential increase of perennial tree crop production systems and decreasing the

effects of environmental degradation through tree plantings and soil and water conservation measures.

Lessons Learned

The integration of a diverse mixture of perennial tree species into hillside farming systems along with improved management practices helps to increase production and minimize risk for limited resource farmers.

6.2.5 Extension Approach

Conclusions

The Hillside Agriculture Project's extension approach was consistent with the over-all objectives of the project in promoting the planting and/or resuscitation of perennial tree crops. The technologies and practices were relatively simple and inexpensive, familiar to farmers, and required few changes to their traditional production systems. However the approach was still heavily dependent on the use of subsidies to encourage farmer participation.

Lessons Learned

Hillside agricultural development activities should focus on the farmer's whole farming system, promoting annual and perennial crop production under mixed cropping patterns.

Hillside farmers will have a greater incentive to adopt better management practices and continue to use them under mixed cropping systems when it is likely that significant benefits will occur relatively quickly from the annual and fruit tree crops, and the perennial crops can be harvested as time and labor resources are available.

6.2.6 Information Management

Conclusions

The key component of any program which wishes to monitor and evaluate performance is a good baseline. The farm plan could well have served this purpose. The Hillside Agriculture Project needed baseline information on its activities which promote improving the productivity of hillside agricultural production systems and increasing household incomes.

An effective MIS will produce the information that managers need to manage activities and report on results. Designing an MIS therefore begins with an assessment of the information needed for those purposes. Managers then can focus on collecting information needed at the program and activity levels.

Lessons Learned

Without an effective information management system which facilitates the collection and use of reliable data to determine the results and impacts of hillside agricultural programs, it will be difficult to develop appropriate and economically-viable mixed cropping systems which are of interest to small hillside farmers.

6.3 Economics and Marketing

6.3.1 Commodity Pricing and Production Trends

Conclusion

Cocoa production has stagnated over the last 10 years, with the exception of recovering from damage caused by Hurricane Gilbert. The low price which farmers receive for cocoa is an important cause of this stagnation. Payments to farmers have not kept pace with increases in the cost of production. In 1995/1996 many farmers let the cocoa rot on the tree because the cost of harvest labor was approximately equal to the value of the cocoa harvested. The Hillside Agriculture Project's successful promotion of perennial tree crops has had the effect of helping cushion declines in the marketed production of cocoa.

Total coffee production has been on a positive trend for the last 15 years, but the substantial increase in the amount of Blue Mountain coffee marketed hides a decrease in the quantity of lowland coffee marketed, and a 60 percent decline in the quantity of coffee marketed by lowland farmer coops. Payments to farmers for both lowland and Blue Mountain coffee are relatively high (compared to cocoa), even though Blue Mountain producers receive almost twice the price that lowland producers receive. Lowland Jamaican coffee is also considered a premium coffee relative to the world market and lowland producer payments are more than twice the price of coffee on the New York futures market. Coffee prices, particularly lowland coffee prices, have increased at a rate similar to or in excess of increases in the costs of production.

It is unclear if production by small farmers in lowland coops has decreased as much as marketing statistics would imply, or if private sector organizations are now marketing an important portion of this production. It is also likely that a portion of the rapidly expanding Blue Mountain coffee production is in fact lowland coffee transported to the Blue Mountains for sale.

Lessons Learned

The conditions under which a project operates may be as important to the success and sustainability of project activities as anything which the project does itself. Changes in these conditions can make it very difficult to assess the impact of the project.

6.3.2 Input subsidies

Conclusions

The Hillside Agriculture Project experimented with reduced subsidies and enforced saving programs but the experimentation was not sufficient to determine how much of the cost of inputs farmers are willing to bear, or the subsidy necessary to stimulate wide spread participation in the proposed activity. The Hillside Agriculture Project had an opportunity to increase knowledge related to the subsidy issue by requesting that latter sub-projects test co-funding or enforced savings schemes similar to those used successfully by the Frankfield or Long Road sub-projects. Such testing would have contributed to the long-term sustainability of efforts to promote perennial tree crops.

One is not likely to find a large spread effect with regard to planting perennial tree crops or even using fertilizer, given the investment involved, if the non-participants do not have access to the subsidized inputs which have been a major attraction for participants.

If the large input subsidies provided by the Hillside Agriculture Project produced production increases no greater than in those non-Hillside Agriculture Project activities which did not provide such subsidies, it would appear that this financial largesse did little to improve adoption rates and productivity. It would also appear that yields at the national level have increased little, if any, during the life of the project. This reinforces the impression that economic projections in the project design were not realistic and that large input subsidies can not be justified economically on the basis of increased commodity production and productivity.

The use of large grant subsidies for a very limited range of activities buys community acquiescence to objectives established for them by others. It inhibits, and essentially contradicts, the use of a process in which communities participate in decisions about development priorities, constraints and opportunities.

Lessons Learned

It appears doubtful that the large input subsidies were either economically justified or necessary to attract the participation of hillside farmers. Many Jamaican farmers (although not necessarily the resource poor) are willing to participate in programs to invest in and increase the production of perennial tree crops even if the program requires a financial contribution from the participants.

Testing alternative subsidy/co-funding arrangements can make an important contribution to the sustainability of natural resource management programs..

The use of large grant subsidies for a very limited range of activities may be incompatible with the promotion of community participation in decisions about their priorities for development.

6.3.3 Marketing and Input Delivery

Conclusions

The project's promotion of diverse fruit tree crops was at times constrained in areas which were distant from urban markets by the lack of marketing opportunities at prices which provide a production incentive. While the project design planned this diversification, it assumed that local agro-processing plants or merchants (higglers) would provide marketing services and an incentive price. That assumption has not always proved valid. Several sub-projects successfully organized group marketing arrangements, hiring the services of a local trucker, and requiring that participants share the cost.

The project's promotion of perennial tree crops was also constrained by the lack of transportation services (farmgate delivery) and the high cost to individuals of transporting small quantities of inputs. Several sub-projects delivered inputs to the farmgate or local drop-off points. At least one sub-project charged participants an additional fee for this service.

The sub-projects which handled these marketing and input delivery challenges effectively are perceived to be the more successful among the sub-projects.

Lessons Learned

Farmers are willing to contribute financially to have access to marketing and input delivery services. Production activities are not likely to be successful unless those services are assured.

6.4 Community Participation, Women and Youth

6.4.1 Community Participation

Conclusions

The Hillside Agriculture Project design did not include a plan or dedicate any human or financial resources specifically to address the strategy/objective of community participation.

The sub-projects that were most successful in establishing a measure of community participation were those in which the facilitating agency was an existing local organization, such as an NGO, CBO or a marketing cooperative which had developed to meet some broader need/objective of the population.

The fact that most LMCs stopped functioning shortly after the sub-projects phased-out would seem to indicate that the Hillside Agriculture Project was not successful in developing local institutions which have a broader purpose than selecting project participants and facilitating

project implementation. The Hillside Agriculture Project community participation approach encouraged communities to be involved in decisions about how activities were implemented, but given the narrow project focus, allowed little community input into decisions about what activities were undertaken. While the Hillside Agriculture Project was open to the diversification of perennial tree crops, in many cases there was considerable pressure to remain focused on cocoa and coffee, perhaps from the commodity boards acting as implementing agencies. The Hillside Agriculture Project did not achieve, and its narrow focus did not lend itself to establishing, a process in which the communities defined development priorities, constraints and opportunities. However, achieving this process would have required expending project resources and may have detracted from, or would have delayed, the achievement of the Hillside Agriculture Project's narrow objective of promoting perennial tree crops.

Lessons Learned

The sustainability afforded by community participation has a cost. A project needs to work with existing local institutions or devote resources to facilitate community development. The time and resources devoted to community development will delay and/or reduce the other outputs which the project can be expected to achieve.

While a project with a very limited focus may be more efficient in pursuing that specific objective, adhering to that strict focus may limit its effectiveness as a means of promoting community participation.

6.4.2 Participation of Women in Agriculture

Conclusion

Although the original the Hillside Agriculture Project design did not specifically target women for project participation, the Hillside Agriculture Project sub-projects had a higher portion of women participants (17-32 percent) than most projects in Jamaica. Yet the Hillside Agriculture Project's selection of participants could have been more women friendly: Women farmers are disproportionately represented among very small, resource poor, farmers (<2 acres). Criteria for project participation based on the quantity of a commodity produced (in part a function of farm size) had the effect of excluding many of these very small farms, and thus a disproportionately large portion of women farmers. To spread benefits among families, most sub-projects excluded the spouses of project participants from receiving free inputs. This rule specifically prevented women landholders who are not heads of households from increasing the value and productivity of their personal plots.

Elsewhere it has been noted that a lack of transportation and marketing services constrained the diversification of perennial tree crops production towards diverse fruit tree species among sub-projects isolated from urban areas. Given the gender-based division of labor found in Jamaican

farm households, women who are not heads of households have much more responsibility for marketing and post-harvest activities than for direct crop production operations. If the Hillside Agriculture Project had more forcefully expanded project activities into marketing, agro-processing and cottage industry development, more women would have benefitted from its activities. Collaboration with RADA's Social Services/Home Economics program provided one potential means of achieving this objective.

Lessons Learned

Knowledge and consideration of social characteristics can help projects identify potential unintended effects of policies, and help decision makers reduce the inadvertent exclusion of women and other groups from participation in project benefits.

The Hillside Agriculture Project's narrow focus on crop production and limited orientation towards marketing and post-harvest activities, caused it to miss an opportunity to increase the involvement of women in areas in which women traditionally have primary responsibility.

6.4.3 Participation of Young Adults (Youth)

Conclusions

The Hillside Agriculture Project has successfully attracted younger farmers such that the average age of participants in on-going projects is approximately 10 years lower than the average age of farmers in Jamaica. It has also developed several programs to involve youth age 14-25, such as school gardens and tree planting programs and competitions. The Hillside Agriculture Project has encouraged parents to give youth a small plot of land for which they are responsible and receive revenue. Youth involvement is limited by adult attitudes towards the role of youth and the adults' expectations that youth should do farm work without reward or incentive. It is also limited by young peoples' lack of access to land and other resources, negative attitude towards farming and rural life, and a high degree of mobility (migration).

School garden programs are constrained by the attitudes of youth, parents and faculty, and poor integration of school gardens into the school curriculum.

Lessons Learned

Parents play a key role in determining the circumstances which allow youth to participate in agricultural programs and promote their interest in farming. Like adults, youth need to receive sufficient economic benefits from their efforts that agriculture becomes an alternative worth considering, access to resources, and some independence in decision-making.

Annex A — Persons Contacted

Annex A: Persons Contacted

Hillside Agriculture Project Staff

Joseph Suah	Project Manager and member PCC
Norman Richards	Deputy Project Manager
Donna Meredith	HAP Project Accountant

USAID Mission to Jamaica

Carole Henderson-Tyson	USAID Mission Director
Hugh Smith	USAID Deputy Mission Director
Gary Lewis	Office Director/SO#2 Team Leader
Kirk Dahlgren	Program Officer
David Attebury	Program Officer
JoAnn Feldman Lawrence	Evaluation Officer
Jane Ellis	HAP Project Coordinator and member PCC
Donna Robertson	HAP Project Accountant
Tess Alberastine	Financial Management Office

Ministry of Agriculture and Mining

Mr. Aaron Parks	Permanent Secretary, Chairman of the PCC
Marie Stachan	Director of Policy and Planning Division, PCC member
Mr. Ramdatt	Director, Land Title Dept., PCC member
Mrs. Pauline Lyons	Director, Project Management and Coordination Division, PCC member
Vincent Campbell	Director, Rural Physical Planning Division
Michael Pryce	Director, Data Bank
Richard Harrison	Executive Director, RADA, PCC member

Morrant-Yallahs Agricultural Development Project (MYADP)

Sebastian Coppieters	EEC Project Coordinator
Lesli Grant	Project Director
Christopher Baker	Technical Coordinator

Office of the Prime Minister

Jackie Dacosta	Environment/watershed advisor

NRCA

Learie Miller	Deputy Director

PAMCO

M. Gillings	Director
M. Hall	Agricultural Office Head

M. Davies	HAP monitor

Cocoa Industry Board

Ken A. Haughton	Chairman of the Cocoa Industry Board
Clinton Gordon	Cocoa Industry Board
John O. Tapper	Cocoa Industry Board

Coffee Industry Board

Alford Williams	Coordinator, extension program

Other Kingston Interviews

Dudley B. Irving	Group General Manager, Agricultural Development Corporation, PCC Member
Sam Wedderburn	World Bank, responsible for regional environmental programs

HAP Sub-Project Staff and persons interviewed

Rio Minho Cocoa Expansion Sub-Project

Larry Chung	Coordinator
Mrs. Russell	Extension Supervisor
Mr. Stanley Douglas	Farmer
Mr. Johnson	
Mrs. Deloris Johnson	Retired Farmer
Non-participant	Farmer
Mr. & Mrs. Hube Stewart	Farmer

Long Road and Environs Hillside Development Sub-Project

Father Jim Webb	Chairman
Raymond Ramdon	Coordinator
Mr. Alfred Lattibeaudiere	Farmer
Nora Smith	Farmer
Rintiane Murray	Farmer
Vivite Espuet Non-participant	Farmer & Higgler
Mr. Campbell	Farmer

North St. Mary Agricultural Social and Ecological Development Initiative Sub-Project

Wayne Wellington	Coordinator
? Barton	Field Assistant
Clive Johnson	Field Assistant
Mr. Bailey	Farmer
Mr. Cimmyt	Farmer

Trinityville Area Tree Crops Development Sub-Project

David Passley	Coordinator
Garth Mullings	Field Assistant
Shawn Williams	Field Assistant
Principal	Font Hill Primary School
Farm Manager/Prof.	Robert Lightborne Secondary Technical School

North Clarendon Processing Company Sub-Project

Mr. Ivan Tomlinson	CEO
Mr. Leslie Thomas	Managing Director

Rapid Increase in the Production of Cocoa/Coffee in the Elgin Area Sub-Project

Mr. David Brian	LMC Elgin
Misc. Farmers in group discussion	

Northern Rio Cobre Watershed Sub-Project, IICA/MINAG

Dr. Tomas Mulleady	Agricultural Economist, IICA
Mr. Zitroy Annakie	Sub-project Manager
Dr. Rama Krishna	
Ms. Marlene Lewis	Sociologist/Facilitator
Mr. Franklyn Brown	President, LMC
Mr. Wharman	Farmer
Mr. Doodison	Farmer
Mr. Linval Rowe	Farmer
Ms. Joan Goldson	Farmer
Mr. Buchanan	Farmer
Mr. J. Johnson	Farmer

Crofts Hill/Kellits, RADA Sub-Project

Mr. Burke	Sub-Project Manager & Area Extension Officer
Mr. Johnson	Farmer
Mr. Vincent Henry	Farmer
Mr. Stanley Stowley	Farmer
Mr. Dudley Johnson	Farmer
Mrs. Adlin Gardner	Farmer
Mr. Joshua Gardner	Farmer

RADA, Manchester Sub-Project

Mr. Parks	Project Assistant
Mr. Waugh	Farmer
Mr. Bramwell	Farmer
Ms. Winnifred Bramwell	Farmer

Mrs. Mavis Clare	Farmer
Mr. Dawkins	Farmer
Mrs. Booth	Farmer

Mammee River Agricultural & Environmental Development Sub-Project

Ms. Claudette Cohall	Farmer/women's group leader , RADA's Social Services/Home Economics Program
Mr. Hector Anderson	Farmer
Mr. Alphonso Nelson	Farmer
Mr. John Clarke	Farmer
Ms. Grace Davis	Farmer

Annex B Bibliography

Annex B: Bibliography

Bockarie, Anne H. Todd. 1993. Hillside Agricultural Sub-Project (HASP) Baseline Survey Results for 1990. USAID/Jamaica.

Caribbean Agricultural Communications Services Limited (CACS). 1992. The comparative analysis of HAP sub-projects, final report. Revised June 1992. Hillside Agriculture Project, Kingston, Jamaica.

CDIE. 1995. Sustainable agriculture and the environment: Jamaica case study. USAID working paper No. 216. May 1995, Center for Development Information and Evaluation, USAID, Washington, D.C.

CIB. 1989-1994. Reports of the Cocoa Industry Board. Kingston, Jamaica.

Data Bank. 1995. Hillside Agriculture Project: Report on the survey of phased out sub-projects, June-September 1995. Data Bank and Evaluation Division, Ministry of Agriculture and Mining, Kingston, Jamaica.

Data Bank. 1996. Hillside Agriculture Project: Report on the survey of on-going projects. DRAFT. Data Bank and Evaluation Division, Ministry of Agriculture and Mining, Kingston, Jamaica. (Expected to be available soon.)

Department of Forestry/MINAG/CIDA. 1994. "Trees For Tomorrow Project." Pencar/Buff Bay Watershed. Socio-Economic Study. Grant Scott, Donald Robotham, Jennifer Jones, Christine Pomerleau.

DEVRES, Inc. 1993. HAP Design of Monitoring and Evaluation System. USAID/Jamaica.

FAO. 1995. The Impact of Structural Adjustment on the Performance of the Agricultural Sector. FAO Technical Cooperation Programme. FAO/Jamaica, TCP/JAM 4452.

FAO. 1995. Jamaica Agricultural Support Services Project Working Paper. FAO/World Bank Cooperative Programme. Ministry of Agriculture, Kingston, Jamaica.

FAO-Investment Centre/World Bank Mission. 1994. Jamaica: Agricultural Sector Brief. S> Wedderburn, Socio-economist - Draft.

Girvan, D.T.M. 1993. Working Together For Development : Cooperatives and Community Development. 1939 - 1968. Compiled and Edited by Norman Girvan.

HAP. n.d. Guide for Sub-Project Application Submission. USAID/Jamaica.

HAP. 1991. Retreat Proceedings. USAID/Jamaica.

HAP Sub-Project Proposals: Blackwood JAS Branch Sub-Project
Guys Hill Coffee Cooperative Sub-Project
Rio Minho Cocoa Expansion Sub-Project
Long Road and Environs Hillside Development Sub-Project
North St. Mary Agricultural Social & Ecological Development Initiative Sub-Project
Trinityville Area Tree Crops Development Sub-Project
North Clarendon Processing Company Expansion Sub-Project
Rapid Increase in the Production of Cocoa and Coffee in the Elgin Area Sub-Project
UNITAS of Jamaica Sub-Project Proposal for the USAID Hillside Agriculture Project

HAP. 1995. Report on the Survey of Phased out Sub-Projects. USAID/Jamaica.

HAP. 1995. Working Papers from the Sixth Annual Retreat. MinAg., Kingston, Jamaica.

Hildebrand, P. E. 1993. Evaluation of Agronomic and Social-Economic Research in the MINAG/IICA HASP. USAID/Jamaica.

IICA/IDB. 1996. Women Food Producers in Jamaica - National Summary. Faith Innerarity and Conrad Smikle.

Koehn, Kenneth; Egbert Tai and Elsie LeFranc. 1989. Process Evaluation of the Hillside Agriculture Project in Jamaica. November 1989, DESFIL/DAI/TR&D/USAID Jamaica, Washington, D.C.

Management Systems International. 1996. USAID/Jamaica - Development of Environmental Management Organizations (DEMO): Mid-Term Project Evaluation Report. MSI, Washington, DC.

NRCA. 1996. State of the 1995-1996 Environment: Celebrating the 5th Anniversary of the NCRA & Environment Awareness Week. Natural Resources Conservation Authority, Kingston, Jamaica.

Pulley, T. A. 1996. USAID/Jamaica's Greatest Achievements over 34 Years of Assistance: 1962-1996. USAID, Kingston, Jamaica.

STATIN. 1993. Statistical Yearbook of Jamaica. The Statistical Institute of Jamaica.

STATIN/PIOJ. 1989. Survey of Living Conditions.

Strachan, O. M. 1995. The Impact of Structural Adjustment on the Performance of the Agricultural Sector. FAO Technical Cooperation Programme, TCP/JAM 4452. Kingston, Jamaica.

Suah, J. R. R. 1996. Some Interesting Data on the Hillside Agriculture Project., MinAg., Kingston, Jamaica.

TR&D. 1992. Impact evaluation of the Hillside Agriculture Project. Mid-term evaluation. June 1992, Tropical Research & Development, Inc./USAID/Jamaica, Gainesville, Florida.

USAID. 1987. HAP Project Paper. USAID/Jamaica.

USAID. 1996. Jamaica Strategy Plan, FY 1997-2001. USAID/Jamaica.

VanSant, J., and M. Toder. 1988. A Management Information System for the Hillside Agriculture Project in Jamaica. USAID/Jamaica, Kingston, Jamaica.

Final Evaluation of the Hillside Agriculture Project

Activity to be Evaluated

Name of Project:	Hillside Agriculture Project (HAP)
USAID Number:	532-0101
Authorized LOP Funding:	US$10 million
Authorization Date:	February 28, 1987
Project Assistance Completion Date:	February 28, 1997

I. Purpose of Evaluation

The purpose of this final evaluation is (1) to assess project impact and performance toward achieving the project goal and objectives, as well as contribution to USAID's economic growth and environmental strategic objectives; (2) to assess the prospects for HAP technologies' sustainability; (3) identify lessons learned from the HAP experience; and (4) identify potential activities for the future which might be developed based on the lessons learned and consistent with the Mission's environmental and economic growth strategies.

II. Background

The purpose of the Hillside Agriculture Project is to increase the productivity and expand the acreage of both export-oriented and domestic perennial crops in selected watersheds. The increase in agricultural production is targeted to create more productive employment of hillside residents, resulting in increased disposable income. The project enhances soil conservation and protects watersheds through the promotion of economic-based incentives for the increased production of deep-rooted tree crops. The project supports the Mission's strategic objective of increased participation for equitable economic growth by increasing the incomes of subsistence producers. It also contributes to the Mission objective of improved environmental management and protection through expansion of tree crops that provide permanent ground cover, through the extension of inexpensive soil conservation techniques such as gully plugging, and through the promotion of safe use of agricultural pesticides. While the project's initial emphasis was heavily slanted toward improving farm incomes, in HAP's last several years, a focus on the mitigation of the environmental impacts of hillside farming has been strengthened. In fact, HAP's USAID funding comes entirely from USG funds earmarked for environmental activities.

The project is implemented by a small autonomous project management unit (PMU) under the Ministry of Agriculture which administers grants to self-managing sub-projects. The sub-projects are community-based, focused on tree crop technology dissemination among small farmers, and contain viable implementation plans. In addition, the PMU facilitates the use of technical

assistance and training in support of project goals, as well as coordinates networking and communication activities among sub-projects and to the wider agricultural community.

To-date, 32 field-level sub-projects have worked with over 18,000 farmers in 8 parishes. Of those sub-projects, 18 have been phased out, leaving 14 active sub-projects. HAP has been considered a great success by the Ministry of Agriculture and has enjoyed a very favorable press, with over 3 million tree stocks having been resuscitated and over 2.7 million new trees planted. Production and productivity levels of coffee and cocoa have increased between 50 to 200 percent among participating farmers.

A 1992 mid-term evaluation of HAP concluded that the project had improved the well-being of many hillside farmers through provision of technical advice that led to increased productivity of cocoa and coffee crops. Reviewing environmental impact, the evaluation found that farmers had adopted HAP-promoted agronomic practices , resulting in a reduction of environmental degradation. The same evaluation, however, advised that HAP needed to "do a much better job of analyzing, evaluating and disseminating information to the wider community of scholars, administrators and decision-makers" if it efforts were to be sustained. A CDIE evaluation conducted in 1994 as one of several country case studies on agriculture and the environment, again, found HAP to be effective and efficient but questioned its sustainability.

As of May 30, 1996, USAID had obligated US$8.94 million to HAP, of which US$8.75 million had been committed. To date 30 field sub-projects and 2 support sub-projects have been funded. HAP was authorized in February 1987 with a planned seven-year LOP and a US$10 million funding level. At the time of authorization, the Jamaican dollar exchange rate was J$5.46 to US$1. In the ten years since that time the Jamaican dollar has depreciated to a present level of about J$40 to US$1. The project's LOP has been extended to ten years through project agreement amendments, with a new PACD of February 1997.

III. Statement of Work

The evaluation team will review and assess the following:

(1) the delivery and impact of assistance provided (e.g., training; operations support; the institutional support provided to the Jamaica Agricultural Society, primary producers' associations, the Rural Agricultural Development Authority (RADA) and implementing NGOs).

(2) the delivery and impact (including sustainability) of project grant-funded inputs on the production decisions/productivity of participating farmers, as well as on non-project cropping areas; and

(3) the efficiency of project implementation arrangements, including PMU effectiveness in managing resources, coordinating activities of sub-project grantees, procurement methods, the

proposal process, grant mechanisms, financial accounting, method of payment vis a vis flow of funding to sub-projects, project monitoring, communication/coordination between PMU and USAID.

The evaluation will also consider and specifically address the following questions and issues:

1. Has HAP met its objectives and achieved the planned end-of-project status (EOPS) and outputs as reflected in the project logframe? How has the project contributed to the Mission's economic growth and environmental strategic objectives, with reference to specific performance indicators?

2. What measurable impact has HAP's promotion of perennial tree cropping practices had on:

- o the production and productivity of hillside farms;
- o farm income and the standard of living in participating communities; and
- o the environment, specifically with respect to soil conservation, pest and disease infestation/infection and control, including off-farm effects? Have participating farmers changed traditional cultivation practices on acreage not supported by HAP in favor of those which are less harmful to the environment?

How could project impact have been enhanced? Consider such areas as marketing, activities to increase value-added to farm prices, and nursery tree stock production.

3. Who were the project's key beneficiaries? How did they benefit? Were women and young people active participants? Were there specific obstacles to their participation; if so, what strategies did HAP use to encourage their participation? How could participation by these target groups be further encouraged?

4. Were the varieties of trees planted and treated the best choices, by economic and environmental standards? Was the mix of new plantings vs resuscitation optimal? Were the technology and transfer systems used (indigenous and introduced) appropriate? successful in terms of adoption rate? What has the spread/multiplier effect been vis a vis adoption of HAP technology by non-participating farmers? Have technologies promoted by HAP shown promise that they will be sustained over the long-term? What are the determining factors?

5. Were marketing and processing linkages adequately integrated into the project?

6. How have sub-projects performed vis a vis their objectives? Have implementing agencies carried out their obligations under their sub-grants? What are the common characteristics of the most successful sub-projects? What are the chief constraints which impeded sub-project implementation?

7. What were the key policy issues which influenced HAP implementation? Did HAP adequately address these policy issues? Should the project have taken a more active role in pursuing policy reforms?

8. What are the lessons learned from HAP and how can they best be replicated or applied to future initiatives? Based on those lessons and the context of the Mission's environmental strategy for the next five years, what directions might future USAID activities in sustainable agriculture/watershed management take?

9. Are there any audit/financial/procurement issues (including host country contribution) that need to be addressed prior to project close-out?

10. Has there been adequate monitoring, assessment and follow-up of the environmental impact (both positive and negative) associated with sub-project activities?

11. Has the project effectively coordinated with and tailored its efforts to complement other donor projects which provide assistance to small farmers and which work in watershed areas?

12. Identify and assess the role that community participation played in formulating sub-project requests; the success of Local Management Committees; sub-project beneficiary selection and benefit distribution; and monitoring and evaluation and sustainability of sub-projects.

13. Has adequate data been collected to analyze overall project progress--both economic and environmental? Is the MIS developed being used appropriately? providing useful information? Will it be continued after the PACD?

14. The evaluation team will participate/facilitate in a workshop on the evaluation presenting lessons learned and their strategic look forward. This workshop will be organized by the HAP PMU. Timing for this workshop is tentatively set for November 22-23, approximately one week to ten days ahead of the end of the evaluation period. The draft evaluation document should be ready by this time. Outcomes of the workshop will need to be included in the final evaluation document.

IV. Methodology

The evaluation team will use both primary and secondary sources of data on which to base their findings. Primary information will be collected through interviews and/or surveys of key project

staff and beneficiaries, including members of the PMU and the relevant representatives of USAID, the Ministry of Agriculture, members of the PCC, and sub-project grantees as well as non-participating farmers in HAP sub-grantee communities.

The evaluation team also will review relevant documents including the project paper, the project grant agreement and amendments, previous project evaluations, relevant project files and sub-project proposals. The evaluation team will have access to all records kept on the project by USAID, the Ministry of Agriculture, the PMU and individual sub-project implementors.

The team will work primarily in Kingston but will travel to visit a representative sampling of at least 10 sub-project sites, including both on-going and closed-out activities.

The evaluation schedule will require the evaluation team to spend five weeks in Jamaica. While in Jamaica, team members will be authorized and expected to work a six-day work week. The team leader will finalize the evaluation report upon return to the contractor's home office. An illustrative schedule of evaluation activities includes:

Week One: Arrival, entry briefing with appropriate SO2 members and Mission evaluation officer, initial introductions and site visits. Document review and interviews begin. The team will submit to the USAID project officer a workplan including an outline of work to be done, individual responsibilities and specifying a time frame.

Weeks Two to Four: Site visits, interviews and document review continue. An interim briefing should be held during the third week to inform SO2 members, including counterparts, of key findings to date.

Week Five: Prepare draft report, brief Mission, PMU and MOA. This briefing should include findings, conclusions, and recommendations. Comments made at the briefing will be incorporated, as appropriate, in the final draft.

Week Six: Prepare final evaluation report for submission to USAID.

The evaluation will commence on or about October 1, 1996.

V. Evaluation Team Composition

The evaluation will be conducted by a multidisciplinary team consisting of an expert in evaluation supported by technical experts in disciplines relevant to the project. At least one of the team positions should be filled by a Jamaican national. Previous work experience in Jamaica or the Caribbean is desirable for all positions.

Environmental and Agricultural Analysis -- level 4 (Team Leader): A senior evaluator with a least fifteen years of experience in the implementation and evaluation of agricultural/environmental development projects, and significant experience in leading consultant teams. The team leader should have a broad understanding of issues and constraints in agricultural development in Jamaica as well as an understanding of environmental issues related to hillside farming. The team leader should be available to be in Jamaica for five weeks and at the contractor's home office for one week following the team's departure to produce the final report. He/she will have ultimate responsibility for presenting a final report acceptable to USAID.

Environmental and Agricultural Analysis --level 3 (Agricultural/Resource Economist): The economist should have a relevant graduate degree and a minimum of ten years of experience in conducting economic analysis of agricultural/environmental development projects. Analysis of the project's economic impact will focus on HAP's net benefit to farmers, i.e., the project's effect on the income of participating farmers, and assessing whether the project's use of economic-based incentives was appropriate to achieve and sustain the objective of increased plantings/maintenance of deep-rooted crops. This individual should be available to spend five weeks in Jamaica.

Social Science Research --level 2 (Sociologist/Anthropologist): This individual should have a relevant graduate degree and a minimum of ten years in conducting social impact analysis of development projects. The sociologist/anthropologist should be experienced in conducting gender and benefit distribution analysis. He/she should be available to work in Jamaica for five weeks.

Environmental and Agricultural Analysis --level 3 (Agronomist/Environmentalist): This individual should have a relevant graduate degree and at least fifteen years of experience in the implementation and evaluation of agricultural and environmental projects. In addition to analyzing production/productivity data, this individual will quantify (where possible) and analyze the environmental impact of this project. He/she should be available to work in Jamaica for five weeks.

VI. Reporting Requirements

The evaluation report will include an Executive Summary, Project Identification Data Sheet, Table of Contents, Report Body and Appendices.

The Executive Summary will state the development objectives of HAP; the purpose of the evaluation; methodology used; findings, conclusions and recommendations; and lessons learned about the design and implementation of this type of project.

The body of the report will include discussion of (1) the purpose and questions of the evaluation; (2) the economic, political and social context of the project; (3) team composition and evaluation

methods (one page maximum); (4) evidence/findings of the study concerning the evaluation questions; (5) conclusions drawn from the findings; and (6) recommendations based on the study findings and conclusions, stated as actions to be taken to improve project performance. The body of the report should be no more than 30 pages.

Appendices should include a copy of the evaluation Scope of Work, the most current Logical Framework, a list of documents consulted and individuals and agencies contacted. Additional appendices may include a brief discussion of technical topics if necessary.

The team will submit a workplan to the USAID project officer/MEO during the first week of the assignment, and conduct an interim briefing during the third week of the evaluation. The evaluation team leader will be expected to keep in close and frequent contact with the project officer and the MEO, with weekly informal status reports to be provided to the relevant SO2 team members. Ten copies of a draft report will be submitted to USAID for distribution and review at least three days prior to a pre-departure briefing to be conducted for Mission and GOJ officials during the final week in-country. The Team Leader will be responsible for submitting ten copies of the final revised evaluation report no later than two weeks after the evaluation team departs from Jamaica. He/she will also be responsible for completing the abstract and narrative sections of the USAID Project Evaluation Summary form which should accompany the final report.

VII. Logistical Support

The contractor will be responsible for making all arrangements for international and in-country transportation, lodging and secretarial support (including photocopying). The contractor will also be responsible for providing its own computers and printer(s). The HAP PMU will provide office space.

k/caribbea.fil/8000.020/anex_a_c.wpd/02/07/97

TABLE OF CONTENTS

14

Annex D: Institutional Annex

1.0 APPROACH AND METHODS TO A FINAL EVALUATION OF HILLSIDE AGRICULTURAL PROJECT

The Hillside Agricultural Project (HAP) was begun in 1988 and will be completed and closed in February 1997. It has been reviewed and evaluated many times by many organizations over the life of the project. This final evaluation will benefit from the work of many others that have studied, researched, reviewed and evaluated HAP. In addition to original field work, this team has found great value in the written works of those that have come before with similar skills and interests.

This evaluation will inevitably address many of the same issues raised and discussed by these prior efforts. The prior works that are particularly important to this annex are:

> Koehn, K.; Tai, E.; and LeFranc, E., *Process Evaluation of the Hillside Agricultural Project in Jamaica*, November 1989, DESFIL/DAI/TR&D/USAID/Jamaica, Washington, DC.
>
> Caribbean Agricultural Communications Services Limited (CACS), *The Comparative Analysis of HAP Sub-projects - Final Report*, Revised June 1992, HAP, Kingston, Jamaica.
>
> Tropical Research and Development Inc., *Impact Evaluation of the Hillside Agriculture Project - Mid Term Evaluation*, June 1992, USAID/Jamaica, Gainesville, FL.
>
> Center for Development Information and Evaluation (CDIE), *Sustainable Agriculture and the Environment: Jamaica Case Study*, USAID Working Paper No. 216, May 1995, USAID, Washington, DC.

A final evaluation differs from evaluations and studies made during the life of a project in that the findings and conclusions will have little opportunity to be reflected in the project itself since the project is essentially finished. USAID has recognized this reality and has asked the team to focus on lessons learned as they might influence future activities. Therefore, this evaluation will not provide direct recommendations to HAP, but rather will address the lessons of the HAP experience in more general terms as they can be applied to similar efforts and activities in the future.

HAP, like many recently designed USAID and other development projects, finds much of its strength in the decentralized nature of implementing many sub-projects. In the case of HAP there were 32 such sub-projects. This final evaluation is not an evaluation of all or even a few of these

sub-projects, but rather it seeks to evaluate the HAP experience in its entirety. This evaluation will address individual sub-projects only to the extent they provide lessons for the entire HAP design and implementation experience.

The team visited 10 sub-projects -- selected to provide a diverse range of important variables thought to be critical to a full understanding of the successes and limitations of just how these sub-projects were originated, designed and implemented. Much data was available about the performance and achievements of these 10 sample sub-projects. However, the team did not seek to completely evaluate any of these sample sub-projects, which would have required much more in-depth work than time permitted.

2.0 INSTITUTIONAL AND ORGANIZATIONAL CONTEXT OF HAP

HAP must be understood within the complex institutional and organizational context that has supported its success. All such development projects exist and thrive or fail within such a context, and attention to how these critical entities are forged into a supportive environment is essential to understanding the success (or limiting) factors for a development project.

2.1 USAID

HAP is a USAID-funded project, and any understanding of its working must start with this funding donor agency. This section explains the operational relationship of USAID to HAP as seen during implementation. This is best understood from two perspectives:

- USAID provides the funding of HAP, directly to the HAP Project Management Unit (PMU) without passing the funds through the Ministry of Finance. Thus, HAP is the direct GOJ contact for USAID. HAP is fully accountable directly to USAID and provides all the required financial budgets, reports and independent audits directly to USAID. This direct financial relationship establishes an ongoing management and oversight connection between the HAP PMU and the USAID project officer that has served them both very well.

- The USAID project officer is a member of the HAP Project Coordinating Committee (PCC). USAID's membership on the PCC assures that USAID is able to contribute to substantive discussions of policy and institutional issues that bear directly on HAP affairs.

The essential role within USAID -- related to HAP -- resides with the HAP project officer (supported by financial and accounting staff). HAP has been particularly fortunate in that the first USAID project officer had been active in HAP's design. This circumstance allowed many of the initial USAID start-up decisions to be made by someone directly and strongly familiar with the underlying strategies of the design, the most prominent of which was the explicit management

flexibility to make decisions and changes appropriate to the situations encountered in implementation.

2.2 Project Coordinating Committee (PCC)

The PCC for HAP is made up of the Permanent Secretary (PS) of the Ministry of Agriculture and Mining (MOAM) and relevant others from that Ministry, the USAID project officer, and a representative of the Jamaica Agricultural Society (JAS). It meets monthly to review HAP progress, discuss and approve new sub-projects, and resolve any problems. The PS is the Chairman and the HAP project manager is the Executive Secretary of the PCC.

The PCC serves several important functions and is widely credited for providing guidance and support to HAP. The functions it serves are: 1) providing the link between USAID and the MOAM to see that both donor and host government are meeting the mutual needs and requirements of each other; 2) providing the oversight, guidance, direction and decision approvals required of a project of this size and scope; 3) serving as the forum for coordinating and/or resolving policy and operational issues between the several institutional and organizational stake holders so important to HAP.

2.3 Ministry of Agriculture and Mining

MOAM is the GOJ home of HAP for all practical purposes, yet HAP is directly responsible to the PCC, not the MOAM. The Permanent Secretary (PS) of the MOAM is the most important GOJ decision maker regarding HAP, although the PS invariably acts with and through the PCC. The unique financial arrangements that have USAID funding going directly to the HAP PMU, and not through the Ministries of Finance and Agriculture first, must be taken into account when understanding this matrix of relationships.

Other relevant MOAM and related organizations are:

Rural Agricultural Development Authority (RADA) - This is essentially the agricultural extension service of Jamaica. In recent years, it has been cut in funding and staff and does not have the human nor fiscal resources to effectively meet the agricultural extension services needs of the country. RADA has served as an implementing agency, sometimes in partnership with another agency, of eight HAP sub-projects, has supplied many of the field staff to HAP sub-projects, and is the GOJ institution nominally looked to for carrying on the HAP-inspired efforts when HAP closes. The Executive Director of RADA is a member the PCC.

RADA, in its current form and function, was established in the lat 1980s and early 1990s while HAP was underway. It was evolved from the Rural Land Authority dealing with issues of rural development within the Ministry of Agriculture (as it was then known). At the time HAP was designed, there was no RADA.

Data Bank - This is the organization within MOAM tasked with collecting field level (and higher order of aggregation) data about biophysical, social and economic factors affecting Jamaican farmers and agriculture. It provides data about the impact of HAP.

Rural Physical Planning Division (RPPD) - This division had two roles related to HAP. The first, and more functional, was to review, approve and comment on the sub-project proposals that were submitted to HAP. The purpose here was to assess the suitability of the sub-projects' proposed agronomic approach to the soils, topography, and climate of the area. As a practical matter, no proposals were rejected or substantially modified on any of these bases. However, the project manager has used early RPPD informal reviews to avoid inappropriate sub-project initiatives from proceeding.

The second role was to use the geographical information system (GIS) to provide HAP with atlases indicating important variables in the sub-project areas. In fact a sub-project was formulated as the mechanism to fund the purchase of new GIS capable computer equipment for RPPD. A variety of problems has plagued this GIS effort and only a few atlases were produced for HAP.

Project Analysis & Monitoring Company (PAMCO) - This is an independent organization that works within the Ministry of Finance to review large project proposals and monitor projects such as HAP. They essentially audit GOJ capital expenditures, and since GOJ is contributing 25% to HAP's budgeted efforts, PAMCO conducts periodic evaluations.

Jamaican Agricultural Society (JAS) - This 100+ year old organization was established in colonial times to provide a channel of communication between the government and Jamaican farmers. It has a national presence that might or might not be effective in GOJ agricultural policy developments. It has branches at the local level and parish offices as well, although Jamaican political partisanship dynamics has caused many to cease meetings. While at one time JAS was the voice of the farmers, it is now widely held to be out of touch with current times and farmers' needs. However, in some locales, it does have credibility.

2.4 HAP Project Management Unit (PMU)

The PMU is the executive center of HAP. It consists of the project manager, Deputy Manager, Project Accountant and one Deputy Accountant, and three support staff (a few others from MOAM perform maintenance, driving, and grounds keeping). This small central staff reflects the emphasis on a decentralized approach to developing and implementing sub-projects based in the areas they serve.

The PMU has several functions: 1) seek out appropriate sub-project proposals, support their development and move them through the PCC for approval; 2) establish the necessary institutional and organizational relationships required to implement each approved sub-project, hire or select sub-project staff, support them logistically, arrange and conduct training for sub-

project staff and supply the necessary technical and extension leadership; 3) provide ongoing management oversight and support to all sub-projects, account for all funds, and monitor and evaluate progress of sub-projects; 4) account to USAID for all funds and expenditures and to the PCC on all aspects of HAP.

The PMU has proved a very effective model for implementing HAP. A strong project manager with skills and experience working with MOAM and other national (and local) organizations has provided the centralized support required to allow the sub-projects to carry out their work with local farmers. This manager has also inspired and directed his sub-project managers with unusual skill, gaining their commitment and hard work to achieve the sub-projects' objectives while maintaining accountability to the PMU.

2.5 Local Management Committees (LMC)

The recognized interface between HAP and the local community of a sub-project area is the Local Management Committee (LMC), formed for this purpose, or derived from an existing community based organization. In a sense, the LMC is intended to function in much the same way for the sub-project as does the PCC for the larger HAP itself. That is, the sub-project management is accountable to the LMC for important decisions and operations and the LMC provides the forum for coordinating local organizations, institutions and community interests in support of the sub-project.

The formation of an LMC, or the recognition of an existing community-based local group as the core of a LMC, is the first step in developing a new sub-project. The most desirable situation is where an existing community-based group approaches HAP about establishing a sub-project in their local area and focused on their expressed needs, in keeping with HAP's mandate and strategy. In practical terms, the PMU staff often has worked with such a community group to reconstitute itself (if needed) to be sure it reflects the appropriate organizations, institutions and interests that will be critical to an effective LMC able to work with the proposed sub-project management.

The preparation of the sub-project proposal is an interactive process between the LMC, PMU, the proposed implementing agency, and less formally with USAID. Typically, over the course of this process, many issues are identified and the PMU takes initiative to resolve them. In this way when the formal proposal is brought to the PCC for approval, most of any concerns or issues have already been reviewed and resolved.

When a proposed sub-project is approved, a formal contract is signed between the HAP PMU and the implementing agency. This contract spells out all the terms, conditions, and goals of the sub-project and gives formal recognition to the role of the LMC to provide local guidance and local policy decisions for the sub-project management. The LMC becomes in effect the board of

directors for the sub-project management. One of the important roles for the LMC will be to review and approve enrollment of each sub-project participant/beneficiary into the sub-project.

The membership of each LMC is constituted to the needs and circumstances of that sub-project. If there are recognized sub-areas or communities comprising the sub-project area, then representation from each of them is desirable among the several farmer members. Where active, or potentially active, the local JAS Branch leadership is represented on the LMC. Likewise, RADA is represented on the LMC whenever possible as is a member of the implementing agency.

The LMC (sometimes with implementing agency direct involvement) will select a Chairperson, and often a Vice-Chairperson. These officers of the LMC share in the fiduciary responsibilities of the sub-project management, and one of them is required to co-sign all checks issued by the sub-project. The LMC meets monthly in open meetings to review sub-project progress and issues brought to its attention by local farmers and/or sub-project management. As mentioned previously, the LMC gives approval for each participant/beneficiary to be enrolled in the sub-project and thus be eligible to receive the benefits of the sub-project.

2.6 Implementing Agencies

The HAP model of a PMU working with multiple sub-projects (32 field level over LOP) necessarily requires the sub-projects to have much of their own management and technical resources available from the outset. This has been accomplished in HAP by designating, and actually contracting with an implementing agency for each sub-project, often using the same agency for several different sub-projects. Some of these agencies have been: Cocoa Industry Board, Coffee Industry Board, JAS (local/Parish Association of Branch Societies), and RADA, as well as NGOs such as IICA, St. Mary Rural Development Project, UNITAS and various other local development groups or authorities that had/have institutional capacity to implement a sub-project.

The level of management, administrative, technical and logistical resources that comes directly from the implementing agency differs in each sub-project. The project agreement requires that 25% of project costs come from Jamaican sources and 75% from USAID. The contributions from Jamaican sources were typically calculated as in-kind, and many of these were from implementing agencies. Sometimes HAP paid all or a portion of such an agency's staff salaries when they were secunded to work as a sub-project management and/or field staff. In many cases, HAP locates and/or recruits the necessary staff or re-assigns staff from other sub-projects that are closed out. It is an eclectic process, demonstrating the great skill of the HAP project manager in matching staff resources to sub-project needs.

Since much of HAP, especially in the early phases, was strongly focused on coffee and cocoa planting and rehabilitation of damaged trees, the technical resources of the Coffee Board and Cocoa Board were drawn on extensively. Technical field agents from these two commodity

boards worked within many of the sub-projects and provided training to newly recruited field agents from other implementing agencies, all through the coordination of the PMU. In many sub-projects the local cooperatives supported by these commodity boards were the initial locus of the LMC, a successful arrangement in most cases.

COMPARATIVE ANALYSIS OF IMPLEMENTING AGENCIES
(CACS, p. 11)

ADMINISTERING ORGANIZATION	ADVANTAGES	DISADVANTAGES
JAS	Long history of service to farmers. Large network of branches.	Many branches are inactive. Lack of technical support.
Commodity Boards	Long history or technological support to farmers. Able to implement efficiently. Marketing assistance.	Lack of support from head office. Narrow focus only on specific crop.
NGO's	Strong local presence. Highly respected by farmers. Flexible in adjusting to project needs.	Lack technical & physical resources. Funding depends on external source.
Private Companies	Strong local presence. Ability to implement efficiently. Marketing assistance.	Short history working in the area.
Government Bodies	Should have technical support. National presence. Long history with projects.	Bureaucracy hinders efficient implementation. "Just another project" hinders focus.
International Organizations	Strong technical resource base. Efficient implementors. Dynamic structure, monitoring with performance a priority. Strong training priority.	"IICA lacks local but MINAG/HAP compensates for this"

A comprehensive listing of sub-projects and their various characteristics can be found at the end of this annex. The implementing agencies for each sub-project is included.

2.7 Sub-Projects

A typical sub-project office might be located at the local office of the implementing agency, or it might establish its own office in the area. The distinctive green and yellow HAP sign with the local sub-project name prominently displayed is there for all to see and give some identity to the sub-project. These same signs are often located at demonstration fields as well.

The sub-project staff typically consists of the sub-project manager, two to three field assistants, and a clerical officer. The sub-project manager is supplied with a vehicle and the field assistants might have a vehicle or motorcycle or share, depending on availability and need. All the records

and accounts are kept manually, and files are established for all farmer participants. Records of inputs, deliveries, acceptances, etc. tend to be maintained in one or two large ledger books.

Depending upon the focus of the sub-project, the actually activities of the sub-project manager and field agents will vary between farmer recruitment, farmer enrollment and farm plan preparation, inspecting planting and soil conservation preparations, obtaining planting materials and other inputs, delivering inputs to farmers, providing technical advice and training to the farmers, and doing follow-up work with farmers over time.

The clerical officer maintains all inventory and financial records for the sub-project. This officer is trained by the PMU project accountant and works with that officer to ensure all records are accurate and will stand up to the required audits of HAP. This is all done manually, except where an implementing agency has equipment and trained staff to use computers. The PMU accounting records are all manually maintained.

Each sub-project manager prepares a monthly written report on activities and accomplishments with detailed data for the PMU's monitoring and evaluation records and use. The manager also attends a monthly meeting at the PMU of all sub-project managers and will be visited at the sub-project location once each quarter by PMU staff. The manager will also attend the annual 2- to 3-day HAP retreat where he will report and discuss issues with the PMU and PCC members.

The HAP project manager is proud of the effective monitoring and evaluation system that is in place. Sub-projects are monitored against a set of targets mutually agreed between the sub-project manager and project manager. Sub-project managers report regularly on their progress toward achieving these targets (e.g., seedlings delivered and farmers enrolled). The project manager uses the visits made to the sub-projects to select random farmer records from the files at the sub-project and then testing those samples by actually going to the farm and seeing or counting the items of interest to confirm the records are correct.

This monitoring and evaluation system serves the needs of the project manager quite well, and explains to some extent the lack of a true management information system as noted by this and previous evaluations. HAP, and sub-project, progress toward targets and the fiscal accounting for funds used in the effort are at the hand of the project manager at anytime.

Another important characteristic of these sub-projects and their management is the degree of autonomy afforded them by the PMU. This support and trust on behalf of the HAP project manager toward the sub-project managers was mentioned by almost all sub-project managers interviewed for this final evaluation. They also pointed out that the project manager enjoyed similar support for his own autonomy in the management of HAP by the PCC, to whom he reported directly.

3.0 MANAGEMENT AND IMPLEMENTATION

3.1 Implementation as a Strategy of HAP

Management and implementation are seldom discussed as strategic in the context of most development projects. Management and implementation are often considered secondary to the underlying technical, economic or social strategies that are expected to drive the activities of the project, strategies which are usually spelled out in great detail in the project design. In the case of HAP the reverse seems to be true. The HAP project design explicitly recognizes the strategic importance of adaptive management and implementation flexibility to achieve the over all goals of the project and leaves the detailed technical, economic and social design elements to those closest (in time, location and understanding) to the problems and opportunities.

> "Aside from the unifying focus on perennial tree crop productivity - the project did not contain a blueprint for how to implement it - but rather left responsibility for deciding on implementation mechanisms on the implementors. Thus - the best aspects of "rolling design" were incorporated into implementation. Individual sub-projects could be free to adapt to the various micro-climates and economic conditions prevailing in their individual targeted areas. In addition, it was possible to learn from the experience of sub-projects in other areas through the dissemination of both perennial crop technologies - as well as extension methodologies."

> "There was a great deal of flexibility in being able to respond to changing situations in the field. For instance, in 1988 after hurricane Gilbert, there was then a more important need to focus on rehabilitation of coffee and cacao orchards. The flexibility extended to management arrangements that encouraged management, sub-project managers, and field agents to be creative in delivering the project message." (Mark Nolan, member of original HAP design team in response to final evaluation team inquiry, Nov. 1, 1996)

While individual sub-projects within HAP vary in their success or sustainability, HAP in general seems to be successful in meeting its goals and objectives and the sustainability of many of its elements is reflected in the designs of several other hillside agriculture projects (i.e., Morant-Yallahs/EEC and Agricultural Services Support Program/WB) in Jamaica today. Much of this success seems directly related to the essential HAP concept of requiring the operational design of sub-projects be done by those that implement the sub-projects and are most aware of the needs, concerns and problems to be encountered at the local implementation level.

It is important to appreciate the subtle changes in how terms like 'participation' have come to be used when discussing the design and implementation of projects like HAP. Ten years ago when HAP was designed and implementation begun, participation seemed to focus on the directionality of design and decision making -- that is did these processes start at the top and flow down to the operational level or were they initiated at the operational level and flow up for confirmation and support. The later would be considered more participatory.

In more recent times participatory methods go beyond this directionality of decision making and look at the quality and depth of community involvement in identifying their own needs, designing activities to meet those needs, sharing in the decisions of how resources are used to meet those needs, monitoring those activities and continually participating in the major operational decisions of implementation.

In evaluating HAP it is important to understand this evolution in the social and managerial understanding of what participation has and does mean. This evaluation endeavors to recognize the full range of meaning for these terms, understanding they have changed over time, and comments about any given aspect of HAP must be made in context of the times, then and now.

This same strategy of devolving the design, management and implementation of HAP activities as close as possible to the sources of critical information and knowledge is seen in the relationship between the PCC and the PMU. The PCC was formed and worked together to further define the needs of the HAP prior to selecting a project manager and establishing the PMU. In this way the PCC itself (vs. the USAID project design document) directly participated in the evolving design process of HAP and confirmed the PCC's ownership of this process and the resulting PMU and selection of the project manager. This process contributed greatly to a 10-year productive and effective relationship between the PCC and the project manager and PMU.

3.1.1 Flexibility in the Management of HAP

Throughout the HAP management structure (USAID, PCC, PMU and sub-projects) decision making has been characterized as flexible and adaptive to the real circumstances at hand. Such flexibility over a long term is only functional when all concerned share a common understanding of the project's goals and objectives and are in agreement when circumstances require innovative tactical decisions to achieve the long-term goals and objectives. Personal and professional trust and confidence between the key individuals making and supporting those decisions is also necessary. The PCC mechanism has established this requisite trust among the key decision makers, albeit sometimes through candid and contentious dialogs.

This flexibility in management and implementation decisions was mentioned time after time when this team interviewed people that had long-term familiarity with HAP. The project's clear and singular focus on perennial tree crop productivity provided an unambiguous criteria against which to test that flexibility. A project with multiple and diverse goals and objectives would not provide

such clear guidance to decision makers, and flexibility could easily become diffusiveness, resulting in lowered goal achievement.

This flexibility is illustrated in the wide range of sub-project designs and implementation mechanisms. While perennial tree crop productivity is at the heart of all of them (with two experimental exceptions), the implementing agencies, emphasis on particular tree varieties, size of farmer population targeted, emphasis on particular agronomic technologies, extension methodologies, more/less attention to marketing issues, etc. show a great diversity. A single standardized design for multiple sub-projects would certainly have led to vastly reduced goal achievement for HAP. At the same time, there are risks to innovation, and some sub-projects were clearly not as successful as others. Still, the overall benefits of flexibility in the management and implementation of HAP and its sub-projects seems well confirmed.

Conclusions

HAP was designed with the intent that real activities and the ultimately most important work would be done at the local sub-project level. These sub-projects were designed and implemented by those peoples closest in time, knowledge and location to the real issues and needs of the target communities. Lessons learned by HAP implementors were continually incorporated into new designs and implementation decisions. While some sub-projects were more successful than others, the overall HAP performance was successful. This decentralized design and implementation concept worked as intended.

Great flexibility in decisions at the HAP PMU level and the sub-project level was supported by the PCC and USAID. This proved to be an effective management and oversight policy. It was workable in many respects because of the clear and continuing project focus on perennial tree crop productivity.

While HAP staff and implementing agencies participated directly in formulating these decentralized sub-project designs, the local farmers seem not to have been well incorporated into this process.

Lessons Learned

A large project with a clear single focus lends itself well to multiple sub-projects that are designed and implemented by the people most familiar with the local conditions to be faced by a sub-project. A concerted effort needs to be made to ensure that local farmers are included and participate in the ongoing needs assessment and design process. Project management should be supported and encouraged to be responsive and flexible in dealing with emergent conditions and opportunities.

3.2 Institutional Location of HAP

The decision to locate HAP close to, but outside the institutional structure of, the Ministry of Agriculture and Mining seems to have been sound and has worked very well. It allowed HAP to move quickly and with great flexibility.

> "HAP was designed to be outside of line operations of the Ministry of Agriculture. The primary reasons for this organizational placement were to avoid many bureaucratic requirements and time delays associated with line operations in the in the Ministry of Agriculture, as well as give greater flexibility to HAP as an organization. In addition, location outside of the ministry structure was foreseen as fostering easier interaction with other organizations and institutions concerned with hillside agriculture and enabling a greater amount of project resources to flow to the farmer. This choice of project placement has proved to be an excellent one; it has allowed HAP to react faster than is normal in the Ministry of Agriculture and has given the project a flexibility not normally found in "official" government projects." (Koehn *et al.*)

This institutional arrangement avoided the predictable bureaucratic delays inherent in government agency implementation efforts, and it helped solve an image problem. There had been a history of GOJ identified (although often donor funded) projects attempting to improve hillside agriculture and soil conservation. The legacy of these projects in the minds of many farmers was one of monetary hand-outs and eventual disappearance with little remaining to show for the effort. HAP wanted to avoid that legacy with an independent identity.

An unspoken, but potentially important issue might have been that of political favoritism in the decisions about where and how to use HAP resources for sub-projects. Since there was to be much flexibility in the design, focus, and implementation mechanisms for these sub-projects, they could easily become subject to political influence if implemented from within a government agency.

Perhaps the most important institutional relationship regarding HAP was that of the funding mechanism for HAP. USAID funding went directly to the PMU for its use according to PCC approved budgets -- the funds did not go through the Ministry of Finance at all. HAP was fully accountable to USAID for all funds and observance of USAID contracting and procurement rules related to such projects. This has worked very well for HAP, although the Ministry of Finance is not happy with the arrangement. It also seems to cause some additional accounting burden for HAP which has to account in some way to Ministry of Finance for reasons associated with Ministry of Finance's national accounting model.

One issue related to this institutional location of HAP is that no clear and operational counterpart relationship was envisioned nor operationalized over the life of HAP. As HAP ends, there is no single mechanism to absorb the staff and experience of HAP. It is speculation if having such a

counter-part institution or organization might have slowed HAP's own progress, it probably would have done so. It seems the original designers placed the primary importance on quickly and effectively improving perennial tree crop productivity over GOJ institutional capacity building.

Conclusions

The institutional location for HAP outside the direct line authority of the MOAM, yet closely connected to MOAM for most functional purposes seems to have worked quite well. The choice not to make a direct counter-part linkage for HAP reflected the priority of the HAP design on quickly improving perrenial tree crop productivity.

The PCC (discussed later) worked very well to support HAP and provide the vital linkage to MOAM and other organizations for HAP.

Funding directly from a USAID to the HAP PMU, avoiding the delays and problems of the Ministry of Finance, worked very well for HAP and was considered critical to HAP's success.

Lessons Learned

A large, multiple level, and decentralized project such as HAP does require independence from traditional Ministry implementation mechanisms which can be slow and cumbersome and subject to arbitrary decisions about allocation of resources. An effective link to the obvious Ministry can be maintained through a Project Coordinating Committee.

Direct funding from USAID to the project will avoid administrative delays, ensure transparent accountability of funds, and provide a project with necessary independance from potential governmental interference.

3.3 Key Management Roles in HAP

A most difficult issue for any project evaluation is to comment upon key roles as they affected the success or limitations of the project. Many evaluations simply do not address the issue. However, this final evaluation will because of unique circumstances in HAP's 10-year history. Regardless of any unique circumstances, there are general lessons to be learned for similar roles in future projects.

The first unique circumstance was to find that the initial USAID project officer that oversaw the first 5 years of HAP had also been a key member of the original USAID HAP design team. This evaluation team heard from several sources that the officer's familiarity with the underlying concepts and strategies of the HAP approach facilitated the start-up of HAP greatly. One person that worked then and now in an administrative role within USAID related to HAP described the

officer as "passionate" about HAP and able to overcome many of the usual administrative problems in start-up of the project by extra personal effort and commitment.

Upon the departure from Jamaica of the initial USAID project officer, a second project officer was assigned to HAP, and remains in that role today. It is unusual for a 10-year project such as HAP to have only two USAID project officers with whom to work. This stability in the USAID oversight and support role has been very beneficial to HAP, especially considering the multiple sub-project nature of HAP. One speculates on the potential delays in approving and implementing sub-projects if the USAID oversight role was reassigned during 10 years to possibly 4 or even 5 project officers (considering the average mission staff tenure pattern.)

> "(He) was the right person for the job as project manager. His personal devotion to the subject of tree crop production and productivity led to a leadership and management style that was effective. His meetings, addresses to farmer groups and project staff, and interactions with MOA officials were colored by the fact that he was very knowledgeable about the subject and strongly believed in what he was doing. He set high expectations for sub-project staff - and followed through on commitments made." (Mark Nolan, member of original HAP design team and initial USAID project officer, in response to final evaluation team inquiry, Nov. 1, 1996)

The choice, and 10-year stability, of the HAP project manager cannot be overlooked in such a final evaluation as this. Almost every time this team asked knowledgeable interviewees to name key factors in the successes of HAP the project manager was singled out as the best person for the job, and it was described by all as a job done extremely well.

The important factors seemed to be the project manager's familiarity with GOJ institutions and individuals, especially those within and related to the MOAM. This manager was also able to quickly and comprehensively learn and understand USAID's project administration procedures. The managers professional background in agriculture coupled with an extensive understanding of the special problems of Jamaican hillside farming proved invaluable. This manager understood the importance of meeting challenges to his autonomy by others in government and he did so with vigor. Perhaps most important, the manager was in fact a manager, demonstrating and demanding results-oriented management performance in all aspects of HAP. However, the failure of HAP to establish an effective MIS might be traced in part to this manager's zeal for action over research.

Conclusions

HAP had the good fortune to have only two, very supportive USAID project officers assigned to it over its 10-year life. The fact that the first project officer had also been heavily involved in the design of HAP assured an unusually smooth start-up for the project.

Lessons Learned

The quality and experience of both USAID project officers as well as that of a project manager is critical to project success, especially in a project like HAP that requires much flexibility. Careful consideration and selection for these critical roles cannot be over estimated.

3.4 Functions and Effectiveness of Project Coordinating Committee (PCC)

The PCC has was established to serve several functions in support of HAP:

- It provides the link between USAID and the Ministry of Agriculture and Mining to see that both donor and host government are meeting the mutual needs and requirements of each other. USAID retained the right to veto any decisions or actions. However, USAID never needed to exercise that retained prerogative.

- It provides the oversight, guidance, direction and decision approvals required of a project of this size and scope.

- It is the forum for coordinating and/or resolving policy and operational issues between the several institutional and organizational stakeholders so important to HAP.

- It provides the *de facto* link of HAP to the MOAM, although HAP is nominally independent of MOAM, reporting directly only to the PCC.

The PCC was formed and began to function well before the PMU was established. It was clear that having the permanent secretary of the MOAM as chairman of the PCC gave it the power and authority it needed. The PCC was thus able to confirm its own identity and ownership of HAP while it sought to define the details of how HAP was to operate. Only then did the PCC select a project manager and was able to do so with a more complete understanding of what it expected of the manager and the project.

The PCC is widely credited as a sincere, dedicated and well-functioning body. It is known for its collegiality and even retains members that have retired from government service, but whose commitment to HAP and experience is still deemed valuable. It has struck a balance between oversight responsibility and micro-management that seems to satisfy the HAP project manager and the PCC. The project manager speaks very well of "my Board of Directors" as a real source of support, strength and problem solving.

Conclusions

The PCC functioned as designed. It provided the requisite guidance, support and coordinating role for HAP and linked HAP functionally to the MOAM and GOJ.

Lessons Learned

The PCC model is effective for linking a complex project with USAID and host government officials without letting the project become captured by a single host government agency. It is a good forum for resolving issues and sharing responsibilities between the donor and the recipient government while preserving a single line of accountability for project management. The membership should be kept small and directly relevant to the needs of the project and should be reviewed periodically to ensure this.

3.5 Participation in Formation and Functioning of Local Management Committees

The true participation of local farmers in the formation of Local Management Committees (LMC), preparation of sub-project proposals, and on-going management oversight of the sub-projects was quite variable. Over all it was less than would be expected of a project that truly focused on community development. Although community participation was one of the three original strategies in the project design (along with promoting perennial tree crops and improved agronomic technologies) and participation is mentioned prominently throughout the document, no model or process is suggested and no funding is provided for community development activities. It would appear that, in most respects, the project designers thought that having people with local experience and knowledge of farmers' needs designing sub-projects and having farmers represented on the LMCs constituted adequate participation. This distinction between community participation as understood in this context 10 years ago and community development as currently used for developing strategies and implementation is discussed earlier in this evaluation.

In 1995 an evaluation of HAP made note of this issue:

> "(In HAP), there was a conscious effort in the design to use a participatory and bottom-up approach. However, this original concept was not followed and the lack of effective group organization and beneficiary participation at the initial stages of sub-project design resulted in problems of coverage and equity. These problems were manifested by:
>
> - Only partial participation of beneficiaries (primarily through the committees in charge of screening potential beneficiaries);
> - No effective beneficiary participation in design decision-making; and
> - Sub-projects that were designed by the implementing agencies, not by the farmers, and which, therefore, were only partially demand-driven (CDIE, p. 29).

Similar issues were raised in 1992:

> "To date, with the exception of IICA/MINAG, the (sub)-projects have not secured community participation in the first two stages of the project cycle, and, LMC deliberations aside, communities have not participated in project monitoring.
>
> The trend has been for most sub-projects to be formulated, approved and launched. Only then are farmers contacted about their willingness to participate. District meetings are held at which the project is explained, and/or co-operative district secretaries explain the project to farmers in their areas. At this stage the project components such as crop focus and input requirement have been determined, farmer incentives decided, and the farmer is presented with the choice of participating under the stated terms" (CACS, p. 8).

The management of HAP made early and continuing decisions to focus on the most time and cost-effective ways to establish functioning sub-projects that could increase perennial tree crop productivity, the over arching goal of HAP. In too many cases, where no functional community based organization already existed, this presented a clear trade-off between time-consuming community development efforts to gain the full and real participation of local farmers or to work with whatever local mechanism could be formed by HAP to expedite the preparation of a sub-project proposal, establish at least a minimally functional LMC, and begin implementation of the sub-project when it was approved.

It is not now, and probably never can be, clear if those trade-off decisions were ultimately in the long-term interests of the farmers, lasting tree crop productivity, and sustainability of community-based efforts to improve conditions for farmers. Each gained and lost some in the equation.

In retrospect, perhaps HAP could have contributed to the growing knowledge base about rural development by matching two local areas on this variable lack of existing and functioning community organization and treating one of them with extensive community development efforts to eventually form a truly participative LMC. Many years later it would be interesting to see the differences between the two sub-project areas in all the terms that HAP considers important.

Conclusions

Participation by local farmers in the initiation, planning and implementation of sub-projects through LMCs was limited, when considered in community development terms of today. It is more in keeping with the contemporary understanding of participation 10 years ago. Consequently, LMCs functioned best when they were derived from an existing community-based organization.

Lessons Learned:

Projects that look to community-based organizations as critical mechanisms for local implementation must have the time, resources and skills available to undertake community development efforts. Alternatively, the project will need to adjust its expectations of true participation and long term sustainability potential.

3.6 Sustainability of HAP Impact

Any discussion of sustainability must recognize that the concept and importance of sustainability was emphasized several years after HAP had been designed and implementation begun. In a like manner, many of HAP's priorities and activities were added incrementally as part of the no-cost project extension actions taken by USAID on two occasions and by PIL many times as well. This speaks well for the adaptability of the original design and the flexibility of management during implementation.

HAP's most obvious sustainable impact is the over 6.5 million newly productive perennial trees it established or resuscitated. This is a significant contribution to hillside agriculture and soil conservation in Jamaica. Regarding sustainable institutional capacity, HAP's impact seems minimal.

> "...(A)n underlying premise of (HAP) was that an institutional capability to provide technical advice to farmers already had been established. Although this was the case with the Cocoa Board and the Coffee Board, RADA, which was entrusted with assisting in the implementation of some sub-projects and with providing continuity of technical advice to farmers, remains one of the weakest institutions. It lacks trained technical personnel; appropriate supervision; and the means to deliver messages, monitor activities, and encourage the maintenance of conservation practices. HAP supported only limited technical assistance, and the training element consisted largely of training of trainers and observation visits to other countries with a focus on coffee and cocoa. In assessing the sustainability of the sub-projects, it seems that implementation could have been more effective if the project had incorporated more technical assistance and training, particularly in the area of community organization and in strengthening RADA's extension expertise and program support" (CDIE, p.13).

The vitality of the extension work of both the Coffee Board and Cocoa Board as well as their on going marketing cooperatives are certainly reflections of HAP's success, and as such should be considered evidence of sustainable impact of HAP. In the same light, the new technical practices introduced and supported by HAP sub-project staff continue to spread and have beneficial returns to both the farmers using them and to hillside agriculture in Jamaica. Much data has been collected by HAP, and it has been retained for future research concerned with hillside agriculture.

The impact of HAP is also seen in the legacy of its design and implementation lessons as they are reflected in new projects focused on the same problems. Many organizations and individuals have visited and researched HAP, and these HAP-inspired lessons can be seen in the designs of projects such as the Morant-Yallahs/EEC project and the Agricultural Services Support Program/WB

RADA is now expected to sustain many of HAP's activities. However, RADA does not have the full level resources to do so, and HAP had no mechanism to materially impact RADA's capacity. While RADA will maintain a level of extension service in keeping with its own ongoing programs, the effort to increase perennial tree crop productivity will not continue at current levels when HAP ends.

HAP did not have the community development resources and skills needed to develop and support truly self-sustaining LMCs. For the most part, only those LMCs that existed in another form and functioned prior to HAP will continue when HAP ends.

Conclusions

HAP left a lasting legacy of productive perennial trees and provided a recognized model for other projects to use.

HAP will have little sustained institutional impact in most areas were it worked. The design of HAP did not focus activities nor resources on this institutional development agenda.

Lessons Learned

Sustainability should be defined for any project in its design phase. When the desired sustainable impact is clearly defined, project priorities and resources should be aligned in the earliest phases of the project toward achieving that sustainability at project's end.

k/caribbea.fil/8000.020/anex_d.wpd/02/07/97

TABLE OF CONTENTS

Annex E: Report of the Environmental and Agricultural Specialist

1.0 BACKGROUND

In Jamaica, only 3.2 percent of the land is suited for cultivation with little or no restrictions on land-use management practices (suitable for annual crops, perennial trees, and/or natural forest). An additional 11.3 percent of the land is suitable for cultivation with moderate restrictions. Of the rest, 24.1 percent is suitable for farming with strong limitations, 10.6 percent for tree crops and pasture with extreme shortcomings for cultivation, while the remaining 56.4 percent is not suitable for agriculture, tolerating only forestry.[1] More than 75 percent of the country's topography has slopes of greater than 10 degrees. Most small hillside farms occupy 13 percent of marginal lands and farming households average 2.2 parcels/farm. ".... large farmers have occupied the best lands on the plains, while small farmers are concentrated on the watershed areas, cultivating steep slopes and other marginal lands."[2]

These broad statistics highlights the extreme land restrictions on the types of crops and associated land-use practices suitable for agricultural production systems on steep slopes. Jamaica's single most important environmental problem, the one that affects the largest number of people, is the degradation of watersheds. Watershed degradation leads to topsoil loss which, in turn, leads to (1) reduced agricultural productivity and the need/use of chemical fertilizers; and (2) reduced retention of rainwater by the soil, faster runoff, and more flooding.

Jamaica is particularly susceptible to watershed degradation because about 80% of the land is hilly or mountainous. About half of Jamaica's land area is used for agriculture, and, in the absence of soil/water conservation and soil fertility enhancement practices, agriculture will remain to be the principle cause of watershed degradation.

The domestic agriculture sub-sector accounts for more than 50% of the agricultural GDP. Its production is largely generated by small hillside farming households which cultivate scattered small plots throughout their landholdings across 34 watersheds in the country (Reyes-Pacheco, 1995). "Small hillside farmers, who are the majority, produce most of the perennial tree crops and almost all the annual food crops. A majority of all farmers operate 15 percent of Jamaica's farm land on plots with less than 2.5 hectares, typically on the hillsides."[3]

---

[1]IFAD/IICA. 1994. Jamaica: A Strategic Proposal for Rural Development. Pg. 14.

[2]Ibid. Pg. 19.

[3]World Bank. 1994. Jamaica: A Strategy for Growth and Poverty Reduction. Country Economic Memorandum. Pg. 20.

There is a scarcity of knowledge required to appraise the intricate web of man and the natural resources upon which he/she depends for his/her well-being, and for developing reliable information to assess the sustainability of different agricultural farming systems with regards to production practices and the environment.

If hillside farming systems can be identified, characterized, valued, and evaluated -- productively and economically, and their relationships with the environment established, then distinct components of these farming systems could be analytically assessed for their effects and impacts on the whole of the farming system. Thus, policies needed to establish a more enabling environment for sustainable land-use in hillside agricultural systems could be identified, designed, and implemented. While there is no general agreement as to the definition of sustainable agricultural systems, this report will attempt to draw some of the lessons learned from the USAID-funded Hillside Agriculture Project (HAP) whose activities have contributed to increasing the productivity of hillside agriculture and to promote soil and water conservation in Jamaica.

2.0 ISSUES AND FINDINGS

HAP was designed to follow a strategy consisting of three distinct parts: 1) perennial cropping systems, 2) improved technologies (defined here as improved varieties and/or improved management practices), and 3) community participation. This section evaluates the three strategies and their effectiveness to date.

2.1 Promotion of Perennial Tree Crops

HAP was designed to initiate an undetermined number of sub-project grants to increase the production and productivity of selected perennial tree crops. A number of perennial crops, especially cocoa and coffee, are already grown by a large number of farmers in the project area. There is also much indigenous knowledge about how these crops can contribute to the mixed cropping system of most hillside farmers. It was felt during project design that a systematic approach was needed to assist hillside farmers in increasing both the production of new plantings of perennial tree crops and also to improve the productivity of existing stands of perennial tree crops.

A number of perennial tree crops, especially cocoa and coffee, are already traditional components of the mixed cropping systems in the sub-project area. The project design initially called for the planting of new cocoa and coffee seedlings to increase plant density in existing fields and to establish newly planted cocoa/coffee in hillside plots. The devastating effects of Hurricane Gilbert in 1988 on hillside crops required HAP to re-evaluate its focus on new plantings toward helping farmers re-establish their hillside production systems. HAP's strategy was, therefore, to promote resuscitation of farmers' existing perennial tree crops to provide additional income quickly by improving productivity of these crops, while the planting of new trees would contribute to income and maintenance costs over the long-term. It is clear that most of HAP's direct beneficiaries - the

participating farmers - feel that they have experienced dramatic rises in both production and productivity of their perennial tree cropping systems.

Non-traditional tree crops which, previously, were unknown for their economic value were evaluated for the integration into HAP sub-projects. These were identified and included in HAP activities for multiplication and dissemination of seedlings. Tree crops that return economic benefits in the short-term were integrated with the original tree crops, cocoa/coffee, into the HAP sub-projects activities based on lessons learned by previous sub-projects.

The resuscitation of over 2 million cocoa plants and 1 million coffee plants and the planting of over 950,000 cocoa plus over 1.7 million coffee plants clearly resulted in increased production potentials of these crops in Jamaican hillside agricultural systems (Table 1). Whether these interventions have increased productivity cannot be validated due to a lack of data on farm productivity and/or income from the sales of cocoa/coffee by participating farmers. There have been numerous reports from previous evaluations of farmers attributing 2-fold to 4-fold increases in cocoa and/or coffee yields due to HAP's assistance. This evaluation team found it difficult to assess production impacts attributable to HAP's interventions because such data was not available. Farmer interviews indicate that they do feel that their production potential has increased, yet there is no way to quantify farm-level increases attributable to HAP interventions.

Table 1. Hillside Agriculture Project, Jamaica, sub-project results from planting and resuscitating perennial trees as of September,1996.

Sub-Projects	Beneficiaries	Land Area Treated (ha)	Cocoa Trees		Coffee Trees		Timber	Other Trees
			Planted	Resuscitated	Planted	Resuscitated	Planted	Planted
Phased out	9,109	2,625	648,620	1,628,705	343,867	502,021	58,839	249,905
On-Going	8,853	4,148	308,546	453,623	1,392,042	580,199	91,742	218,665
Total	**17,962**	**6,773**	**957,166**	**2,082,328**	**1,735,909**	**1,082,220**	**150,581**	**468,370**

Source: HAP Monthly Report, September, 1996.

The effects of Hurricane Gilbert required earlier sub-projects to focus on resuscitating damaged cocoa and coffee stands. The HAP technical program then responded to farmers' interest in alternative perennial tree crops in latter sub-project design. HAP's ability to respond to the devastating effects of Hurricane Gilbert by helping to resuscitate the cocoa trees on the project area's hillsides had a significant impact. It also had a similar impact on the coffee farmers by assisting them to understand the effects of rehabilitating their old coffee plants and/or planting new coffee stands.

The demand for non-traditional tree crop species suggests that farmers are willing to adapt new management practices in the farming system to include new cash crops as markets become available. HAP technical assistance to participating farmers resulted in over 150,000 timber and more than 468,000 miscellaneous fruit trees being planted.

Farmer interviews during this evaluation, and an extensive review of the literature, indicates that these results can be attributed to the farmers familiarity with these production practices. Therefore, there was a willingness on the part of farmers to selectively adopt management techniques promoted by the sub-projects and to expand the land in production while HAP was supplying free seedlings, inputs, and technical assistance. There is little information, however, that HAP technologies will continue to be used by hillside farmers when the projects have ceased these activities. Farmers interviewed from phased-out projects felt that their participation in HAP was greatly appreciated, but the chances of their continuing these management practices as a package after HAP were doubtful. Farmers would be expected to adapt components of the recommended technology package as their limited resources permit.

Interviews and a review of the data during this evaluation corroborate with previous evaluations of HAP that the sub-projects have had a positive impact on both cocoa and coffee production. The most significant result was HAP's response to farmers' needs after Hurricane Gilbert in resuscitating and/or rehabilitating cocoa/coffee plant stands in farmers fields. Later, HAP's focus shifted toward placing project resources into a more diversified approach to assisting farmers in planting other perennial tree species of potential market value which diversified the economic base of their production systems.

Most HAP sub-projects assisted farmers to improve the management of existing plots that were, for the most part, already planted in perennial trees. These farmers increased plant densities of existing stands where needed, cut back plants to reduce shading, diversified the plot with new tree crop species, and established soil and water conservation measures if erosion was a problem. Due to farmer familiarity of these practices, farmers easily adapted to HAP's technical approach to improved crop management practices. Cover from the canopies of perennial trees protects the soil and the leaf litter builds up a cover of mulch, protecting it from sheet and rill erosion.

HAP, working through its 32 sub-projects, has made a significant impact on protecting Jamaica's fragile hillsides from degradation through the planting and/or resuscitation of over 6.5 million perennial trees on over 12,000 acres of hillside farms in 8 Parishes. It remains to be seen if HAP has had a sustainable impact on how small hillside farmers will manage their mixed cropping systems. Given the fact that the inputs were heavily subsidized, most farmers interviewed during this and previous evaluations have expressed their concerns of not being able to afford - given their limited resources of cash, time and labor - to continue to use technologies (planting seedlings and/or using improved management practices) promoted by HAP after the sub-projects have ceased. As many of the newly planted perennial tree crops are just now coming into full

production, farmers will decide if the benefits achieved under HAP justify their continued investments in improved management of their perennial tree crops.

Initially, Commodity Board seedling nurseries were not able to provide sufficient numbers of cocoa/coffee seedlings for the initial HAP sub-projects. Non-traditional perennial tree crops have been evaluated and promoted by most of the latter sub-projects and the impact of introducing these perennial trees with economic potential into traditional mixed cropping systems has improved the potential for small hillside farmers in Jamaica to improve their economic well-being. Selection of varieties of perennial tree crops promoted by HAP was determined based on farmers' needs and seedling availability at CIB, CIDCo, and private sector nurseries. As more focus was placed on non-traditional tree crops, private sector nurseries began production of these seedlings as the market developed.

Koehn *et al.* (1989) concluded that CIB and CIDCo would give sufficient attention to marketing of cocoa/coffee and the higglers trade would suffice for other fruit tree crops that marketing constraints would not be a factor in hillside tree crop production systems.

A significant result of most sub-projects was the introduction of appropriate varieties of perennial tree seedlings to rehabilitate plots of perennial trees that would not normally be intensively managed by the small farmers as they do their annual crops. Farmers, particularly small farmers, regard their perennial crops as a source of additional income available without much expenditure of cash, labor, or time. The result achieved by HAP has been to provide information, seedlings, and other inputs to improve these perennial tree crop components of their traditional cropping systems and to improve their potential to increase production and income. Unfortunately, there is no way to substantiate the magnitude, if any, of the increase in production and/or income because these aspects of the technical program were not monitored to provide any quantitative data.

Conclusions

HAP's strategy to promote resuscitation of farmers' existing perennial tree crops was very effective. It provided additional income quickly by improving productivity of these crops, while the planting of new trees contribute to income and maintenance costs over the long-term.

These results can be attributed to the farmers familiarity with the types of perennial tree crops and improved management practices promoted by HAP. HAP was successful in increasing the production potential of land areas planted to cocoa and/or coffee, both in pure and mixed crop stands, and also provided a significant number of timber and non-traditional perennial tree crops to farmers which have good market potential.

The demand for non-traditional tree crop species shows that farmers are willing to adapt new management practices into their farming systems to include new cash crops as markets become available.

Lessons Learned

Hillside farmers in Jamaica have developed very diverse mixed cropping systems as a risk aversion strategy in response to fluctuating prices, market availability, and climatic changes.

Any project which has as its purpose to increase production of Jamaica's hillside farmers must ensure that the project has a component to support market development strategies.

To properly evaluate, technically and socio-economically, the best types of perennial tree cropping systems for hillside farmers, projects need to monitor their activities and collect, aggregate and present data to quantify what project impacts have been achieved.

2.2 Improved Technologies

The second part of the HAP strategy is the identification, adaptation, and dissemination of improved technologies. The critical element for project success is the dissemination of these improved technologies. The definition used here of improved technologies is the use of more productive fruit and tree crop varieties and/or improved tree crop management practices. Another important component of this strategy is the training-of-trainers to promote the widespread diffusion of these improved technologies. HAP has introduced improved land-use management practices which include production related technologies such as farm management plans, fertilizers, increased plant density, improved plant stock, pest and shade management and weed control, as well as low cost, soil conservation measures meant to protect Jamaica's fragile hillsides.

2.2.1 Production-Related Technologies

The dominant pre-occupation with cocoa and coffee production during the design of HAP's earlier sub-projects was to focus on export crops which had existing markets and would increase foreign exchange. Cocoa plants also have some important environmental characteristics such as shedding leaves copiously provides ground cover to reduce soil and water erosion; and a combination of shading and ground cover which greatly reduces weed infestations, thereby reducing labor requirements needed for weeding. An additional factor not anticipated during the design of the earlier sub-projects was the urgent need to resuscitate damaged cocoa and coffee plantations after the devastating effect of Hurricane Gilbert. With HAP's technical assistance, farmers were able to cut back these damaged tree crops which stimulates the quick growth of new branches. This new growth has several advantages over older trees: the new branches are much more accessible (lower to the ground) and stimulate fruit development over the damaged parts of the tree as well on the new growth.

During implementation, the HAP PMU specifically chose to promote the familiar technology packages known to cocoa and coffee producers, because the recommendations increase

production, rather than waste time and resources funding research to develop new, unfamiliar technologies. The latter HAP sub-projects have now oriented toward mixed perennial tree crop systems promoting not just cocoa and coffee, but also forestry species for timber, coconut, banana/plantains, mango, ackee, avocado, and other miscellaneous fruit trees. It has also been observed that these non-traditional perennial tree crops are of interest to younger farmers because of the economic market potential over the long-term.

The latter sub-projects of HAP adapted many of the more favorable characteristics of the earlier sub-projects, such as:

- Demonstration plots had a definite focus on the benefits of soil and water conservation measures which protected the soil;
- Intercropping with yam, banana, plantains, and/or other miscellaneous fruit trees appropriate to the topography of the plots;
- Extension personnel made an impact by taking the initiative to introduce improved agronomic practices building on traditional management practices commonly used by farmers in the area;
- Despite the predominance of cocoa and coffee in the area, other tree crops, fruit and forestry species, were appropriately introduced to participating farmers; and
- Active dispensation of rat poison and fertilizers came out of an early recognition of these factors as dominant constraints to increased cocoa production.

Previous evaluations of HAP mention that the fertilizers used were not based on chemical soil tests for farmer fields and demonstration plots. The fertilizers recommended by CIB and CIDCo for cocoa and coffee were provided and applied at recommended rates. The end objective of the maintenance of economic levels of production requires that the right kind of fertilizer nutrients with the proper placement be supplied in correct amounts at the right time. For the sub-projects visited and based on documentation relative to the non-traditional trees, HAP was promoting the use of fertilizer recommended for use with coconut trees on many of the other non-traditional tree crops. The use of these types of fertilizers were discussed within the implementing agencies and sub-project staff and due to the availability of the fertilizer locally, it was chosen to be used in the recommended technical package.

The critical importance of shade control and the shading provided by established cocoa plantations does not lend itself to varied mixed cropping systems preferred by farmers. Cropping systems observed throughout the project area include the use of banana, plantains, root crops, legumes, and vegetables. Farmer interviews conducted during this evaluation indicated that farmers did not want to cut back their banana stands and other trees of economic importance as

commodity board and HAP field staff recommend to reduce shading. Farmers value these tree crops due to their needs for home consumption and as a source of income. The efficiency of the differing crops mixes associated with cocoa and especially with coffee could not however be measured or compared due to the lack of data needed to evaluate the viability of these mixed cropping systems.

One central output of HAP listed in the project logframe is to make a significant contribution to the development of appropriate technologies and techniques for hillside agriculture. HAP was to identify economically viable technological packages for the production of perennial tree crops. The evaluation team did not find any results linked to an analysis of the technical nor socio-economic feasibility or capabilities of particular farms or farming systems with and without the improved management practices and inputs provided by HAP. There was only anecdotal evidence from HAP that an attempt was made to systematically characterize the economics and management aspects of the participating hillside farmers' traditional production systems to be used in developing appropriate technology recommendations. Many of the recommended techniques were components of out-dated CIB and CIDCo extension packages for cocoa and coffee production systems. This included recommended fertilizer types and application rates based on the respective crop requirements, often targeted for sole cropping systems.

2.2.2 Technologies for Protecting the Environment

The primary strategy used by HAP for improving soil and water conservation was planting perennial tree crops. Trees and their soil holding properties of their roots protect watersheds by reducing the flow of water over the soil and by holding the soil in place. Trees also reduce the forces of wind and rain. By obstructing the flow of water over the soil surface, trees also contribute to the build up of organic matter on the ground surface, increase the percolation of water into the soil profile, and bind the soil to prevent its loss by waterflow and the pull of gravity on steep slopes. Tree crops also have extensive root systems which catch and utilize nutrients from fertilizers applied to annual crops.

Many soil conservation measures have been implemented throughout the project to reduce degradation of the environment in the targeted watersheds. These methods have included engineering (contour trenches, dikes, and gully plugs) and agronomic (contour vegetative barriers) practices. Unfortunately, there has been no data collected to measure the impacts of these practices on crop production and/or reducing soil erosion. The soil and water conservation measures promoted by HAP's extension program have resulted in the adoption of cultural practices already familiar to most small hillside farmers (Table 2). They know that cutting trees and/or to expose hillside surfaces to the elements can result in soil erosion. But HAP focused on raising the awareness of their farmers of the long-term effects of soil and water erosion and the need to build these structures in their fields.

In most areas under HAP, farmer interviews during this evaluation and from previous evaluations have concluded that farmers do not feel that soil erosion is really a problem, especially on lands under perennial tree crops. Nonetheless, it can be concluded that given the susceptibility of steep hillside degradation over the long-term, it is judicious to promote the planting of perennial tree crops to reduce the erosive effects of wind and rain on these marginal lands.

Other, direct soil conservation practices carried out under HAP also served to reduce the effects of heavy rains and runoff on soil erosion. Individual plant basins, combined with plant materials left on the soil surface as mulch, reduce sheet erosion, increases water infiltration, and builds up organic matter to improve soil fertility. Trenches, grass and/or stone and wood barriers, when built on the contour, serve to reduce soil and water erosion by increasing water infiltration on steep slopes. Gully plugs serve to reduce water velocity as it accumulates in vertical channels that carry water drained from fields, footpaths, and sometimes roads.

Table 2. Hillside Agriculture Project, Jamaica, sub-project results from soil and water conservation activities as of September 1996.

Sub-projects	Soil and Water Conservation Measures					
	Gulley Plugs (#)	Plant Basins (#)	Wood Barriers (m)	Trenches (m)	Stone Barriers (m)	Grass Barriers (m)
Phased out	1,000	3,483	43,734	60,672	0	27,439
On-Going	3,696	555,061	42,517	29,463	4,480	11,252
Total	**4,696**	**558,544**	**86,251**	**90,135**	**4,480**	**38,691**

Source: HAP Monthly Report, September, 1996.

Another significant impact from HAP is the protection of over 12, 000 acres of fragile hillsides that now have an additional 6.5 million trees planted to conserve fragile soils through better canopy cover, improved soil stability, and decreased negative impacts from wind and rain.

Conclusions

HAP's promotion of improved technologies has made a significant contribution to the potential increase of perennial tree crop production systems and decreasing the effects of environmental degradation through tree plantings and soil and water conservation measures.

Lessons Learned

The integration of a diverse mixture of perennial tree species into hillside farming systems along with improved management practices makes an important contribution to, and is an effective method of: increasing production and minimizing risk for limited resource farmers; and promoting erosion control and watershed protection.

2.3 Community Participation

One explicit goal of the project is to involve farmers in the design and implementation stages of all sub-projects. Unfortunately this has not been evident over the HAP LOP for a number of sub-projects. In most cases, although the project required the formation of groups of farmers as a pre-requisite for implementing the sub-projects, the 1989 evaluation (Koehn et al., 1989) reported that farmer participation in the identification and design of the sub-project was the weakest part of HAP. An impact assessment in 1994 (CDIE, 1995) also felt that this was still a problem in the latter sub-projects. This was corroborated during the site visits of this evaluation team in 1996.

Contrary to the original concept, the identification of activities to be undertaken as well as the implementation and management of the sub-projects were not done by the farmers themselves but by institutions exogenous to the communities (notably the CIDCo, CIB, RADA, and/or JAS). These decisions were then communicated to farmers either individually or in group meetings, thereby short-circuiting farmer participation at the decision-making level. Yet, it should be noted that these decisions were based on extensive experiences of implementing agency field staff, HAP PMU and sub-project field staff working with hillside farmers to best meet their perceptions of farmer needs.

In a more positive sense, many of the sub-projects, especially latter ones, are demand-driven because they are designed by agents of these institutions who know which productive activities are most suited to the areas selected. The farmers select the perennials they want to grow; such as coffee, cocoa, banana, plantain, coconut, mango, avocado, and other miscellaneous fruit trees from the range of options and/or activities defined by the institutions designing the sub-project. As a result, the activities are beneficial to the institutions as well as to the producers.

3.0 EXTENSION APPROACH

The development of effective extension mechanisms for improved technologies and inputs needed for improved management practices are major concerns under HAP. Different extension approaches were developed and tested within the activities of the 32 sub-projects. To date, most of the sub-project's extension approaches have been based on providing technical assistance along with the provision of fully subsidized inputs. The main components of the extension approach were the development of farm plans, establishment of demonstration plots, and training.

3.1 Farm Plans

Although there were variations as to the exact nature of these farm plans across sub-projects, the implementing agency and sub-project field staff assisted participating farmers to develop farm plans which included some or all of the following information: 1) the location of the farm and the land area to be developed; 2) data on current saving schemes and available household labor resources; 3) group membership, such as JAS and/or with cooperatives; 4) soil conservation practices used; 5) crop production data; 6) livestock production data; 7) crops to be resuscitated; 8) present land-use practices; 9) proposed land-use practices and crops to be developed; 10) a plan of activities and materials needed; and 11) records for progress and accomplishments.

Previous evaluations of HAP failed to mention the effectiveness of these plans and the way that the sub-projects used this information. During this evaluation, it was determined that most sub-projects have, in fact, developed some sort of farm plans for most of the participating farmers and that the land areas treated over the LOP of HAP can be located using these plans. The sub-projects have used these plans to monitor dates when inputs were received by the farmers. The best use of these plans should be to evaluate the results and impacts from the use of these inputs on production and/or productivity increases and/or for increases of on-farm income.

3.2 Demonstration Plots

Demonstration plots were an important extension approach used in all sub-projects. The demonstration plots were the focus of the training sessions which provided the mechanism for farmers both within and outside of the sub-projects to learn the benefits of improved cultural practices needed to improve the productivity of cocoa/coffee stands. The demonstration plots also included non-traditional tree crops, soil and water conservation measures, and improved tree crop management practices. HAP placed signs at these demonstration sites to inform visitors about the types of interventions which have been included in the demonstration plots. This resulted in many non-participating farmers inquiring about joining the sub-projects activities.

These demonstration plots were located in participating farmers' fields and were developed by the farmer. They were assisted by sub-project field staff to understand and explain the types of interventions that he/she was using to other farmers. These farmers were responsible for the maintenance of these plots using labor from his/her household. These demonstration plots were used for farmer-to-farmer visits organized by sub-project field staff to increase awareness of the costs and benefits of improved crop and land-use management practices among both direct beneficiaries of the sub-project and non-participating farmers within the community.

The specific technologies extended by HAP were not determined during the design of HAP, but rather during the design and implementation of the 32 sub-projects of HAP. The two most common production technologies were resuscitating existing cocoa and coffee fields and planting several species of perennial crop seedlings. Associated with these production technologies was the

demonstration of direct erosion control practices such as planting vegetative barriers, constructing and cleaning ditches, constructing wooden barriers, plugging gullies, digging individual plant basins, and placing tree cuttings along contour lines.

Resuscitation. Cocoa and coffee resuscitation proved to have an immense impact on hillside productivity by HAP due to the destructive effects on existing fields by Hurricane Gilbert. The technology includes pruning or cutting back existing plants to allow for new, more productive growth; reducing shading from nearby trees such banana and/or plantains; increasing the density of plantings in stands that do not have a sufficient number of trees to maximize production; and applying fertilizer and mulch, weeding, and using chemical pest and disease control measures. Resuscitation of cocoa trees was particularly attractive because production increases could be realized within a year of intervention.

Seedlings. The distribution of seedlings of marketable perennial crops such as cocoa and coffee was the second approach used by HAP to encourage planting trees on hillsides. The project targeted one acre per participating farmer and also offered to supply the farmer one or more of the following perennial tree seedlings: coconut, timber, papaya, ackee, avocado, nut meg, shade plants, mango, sour sop, leucaena, sweet sop, jack fruit, passion fruit, guava, bread fruit, pimento, cashew, nasberry, star apple, cinnamon, and pineapple. In several cases, new varieties and/or improved production practices were extended along with the seedlings and fertilizers. These included the use of dwarf coconuts, the practice of topworking mango trees[4], the intercropping of perennial trees with annual crops, and the pruning back of overgrown fruit trees.

The widespread distribution of trees other than cocoa and coffee was in response to farmers' requests for assistance in maximizing returns from their multi-storied tree crop fields. Although the farmers were most interested in increasing returns from their annual crops, and although they were willing to make a medium-term investment in cocoa and/or coffee, they also wanted to explore the possible long-term benefits of other tree crops for which there may be a market (CACS, 1991).

3.3 Training

Training sessions were also used by most, if not all, sub-projects. These training sessions consisted of field days, seminars, demonstrations, and workshops. On-farm field visits were the primary method used to ensure that farmers were aware of the benefits of utilizing improved cultural practices and soil conservation measures.

---

[4]This practice consists of cutting back the canopy of existing, low producing local varieties of mango trees and grafting improved varieties to the old rootstock. This contributes to increased production, ease of harvest, and the reduction of unwanted shading of nearby crops.

HAP has increased the awareness of hillside farmers about the types of interventions promoted by HAP to increase the productivity of hillside agricultural systems while protecting the fragile hillside slopes. HAP conducted over 7000 training sessions which included the use of demonstration plots located in farmers fields and other strategic locations for farmer-to-farmer field days, training sessions geared to farmers' needs to learn more about improved cultural practices, and on-site training in crop and/or land-use management practices to increase the production and/or productivity of perennial tree crops (Table 3).

Data on training sessions from earlier sub-projects was not available at the time of this evaluation. The data presented in Table 3 represents the training activities of the latter HAP sub-projects. It represents a lesson learned by HAP that training is essential to sustainability and therefore the project made a significant effort to reach non-participating hillside farmers through these training activities. The demonstration plots emphasized appropriate cropping systems in mixed stands, improved agronomic management practices, and introduced non-traditional perennial tree crops into the system which have strong domestic and/or export market potential. Appropriate soil and water conservation structures were also constructed for most demonstration plots.

Table 3. Type and number of training sessions completed by HAP as of September, 1996. [Some sub-project data not available]

Technology/Soil Conservation Practice	Number of Training Sessions
Plant propagation	515
Improving plant densities	774
Fertilizer application	1001
Shade management	780
Pest control	802
Weed control	469
Tree resuscitation	839
Soil conservation	450
Trenches	226
Grass barriers	464
Stone barriers	152
Terraces	34
Gulley plugs	232
Individual plant basins	15
Community development	193
Other	240
Total	**7186**

Unfortunately, little or no data is available on the results achieved through these numerous training sessions. Training is intended to transfer information to men and women farmers about how improved cultural practices, combined with soil conservation measures, can increase the productivity of perennial tree cropping systems. It is not clear if HAP sub-projects registered participating farmers in these training sessions in order to know where they will use (hopefully) this new information. Training in and of itself is not sufficient to understanding whether farmers perceive that what they learned in training can be used by them on their farms. Monitoring these trained farmers is essential to know if they are using improved cultural practices that they learned through training or not. If not, HAP should try to determine if the information provided through training was inappropriate and/or characterize those farmers who were trained and were using the cultural practices to understand why these farmers felt that the training was effective and useful.

It is expected that at the sub-project level, records of participating farmers at these training sessions may be available. Some sub-project annual reports do indicate numbers of participants and numbers of visits. This information is not very useful without recording what results and impacts of the training and site visits have been achieved.

Conclusions

HAP's extension approach was consistent with the over-all objectives of the project in promoting the planting and/or resuscitation of perennial tree crops. The technologies and practices were relatively simple and inexpensive, familiar to farmers, and required few changes to their traditional production systems.

Lessons Learned

Hillside agricultural development activities should focus on the farmer's whole farming system, promoting annual and perennial crop production under mixed cropping patterns.

Hillside farmers will have a greater incentive to adopt better management practices and continue to use them under mixed cropping systems when it is likely that significant benefits will occur relatively quickly from the annual and fruit tree crops, and the perennial crops can be harvested as time and labor resources are available.

4.0 INFORMATION MANAGEMENT

The project paper indicates that an information system should be developed to perform the following tasks:

- Provide data for compiling financial and qualitative reports to serve as the basis for annual PCC review to ensure that the grants are directed at meeting overall project goals;

- Provide the USAID Project Committee with data for conducting its assessment of the HAP on a semi-annual basis;
- Provide the USAID Project Committee with data for annual sub-project reviews;
- Alert the PCC in a timely fashion of needs for technical assistance or training to improve the performance of any particular sub-project; and
- Enable an assessment, at the beginning of the third year, of pilot schemes undertaken in the initial series of sub-projects based on adoption rates and effectiveness of the technological packages for selection, modification, and dissemination to the entire watersheds in subsequent sub-projects.

The earlier sub-project activities were meant to provide practical demonstration and experience in various approaches and technical applications as a guide to planning future HAP activities. Thus the capture of adequate and important information concerning activities of the initial series of HAP sub-projects was critical for measuring impact and providing solid empirical evidence for the expansion of successful or promising interventions. This information was also intended to be used to assist in the formulation of appropriate policy which contributes to establishing an enabling environment of hillside agriculture in Jamaica.

A common concern over the LOP of HAP has been the lack of adequate baseline data for most of the approved sub-projects. These data are critical for sound assessments of project progress and impact. In 1988, technical assistance was provided to HAP to design the framework for a management information system (MIS), identify the crucial issues in this design, discuss the major elements in the MIS and implementation, and developed a sub-project proposal tracking form. A scope of work was proposed to identify the need for and a description of a position as Deputy Project Manager who would develop and implement a MIS early in HAP's implementation phases of the first sub-projects.

A subsequent evaluation of HAP in 1989 also recommended that the project hire a full-time Deputy Project Manager who would have the responsibility to establish and manage the MIS (Koehn *et al.*, 1989). As a result of this recommendation, a Deputy Project Manager was hired to begin the development of the information system. Unfortunately, this is perhaps the one instance in which the PCC (with USAID approval) did not pick the right person for the job. The person hired did not have the background nor expertise to meet this challenge and eventually left HAP without making any progress towards implementing a systematic MIS. Such a system would have provided HAP with an ability to more effectively monitor and evaluate the results and impacts of HAP's technical program.

The mid-term evaluation (TR&D, 1992) also recommended that the HAP PMU must develop and implement a systematic, comprehensive and up-to-date management information system. The

evaluation team again concluded that a systematic, comprehensive and up-to-date MIS had not been established due to the lack of a person with the required analytical and organizational skills necessary to complete this task. It was noted in the report that a fully developed MIS would be fundamental to a clear and accurate final evaluation and essential for the identification and design of future interventions in Jamaican hillside agriculture.

HAP had an opportunity to design and implement a management information system (MIS). This system would have made a significant contribution to better understanding strategies small hillside farmers use to produce the crops and incomes needed to maintain a certain level of well-being at the household level. Given the complexity of developing an effective MIS and the lack of expertise within HAP to accomplish this task, an MIS for the collection and use of technical, social, and economic data was never developed. HAP has implemented a very effective system for the administrative and financial components of the project. Yet, the stated objectives of HAP were to increase productivity and increase incomes of small hillside farming households. There have been little or no attempt across the sub-projects to collect data which would quantify the results and impacts of HAP on increased production nor on the levels, if any, of increased incomes by participating farmers.

The key component of any program which wishes to monitor and evaluate performance is a good baseline. The farm plan could have well served this purpose. HAP needed baseline information on its activities which promote improving the productivity of hillside agricultural production systems and increasing household incomes. These data provide information on household-level production systems relative to the biophysical, socio-cultural, and economic conditions which influence the decision-making process of small farm households. The baseline serves as the point of departure and allows one to determine the magnitude of changes which can be attributed to the program's interventions. These data can then be used over time to better understand incentives for farmers to adopt or adapt better management practices or their constraints.

The first step in designing an effective information system to track program results and impacts is to identify the types of information needed for such a system. This is called a needs assessment and should include the needs of donors, project managers, field staff, and farmers. The farm plan which was designed to be developed for farmers selected to participate in HAP's program was an excellent opportunity to determine the types of information that farmers need to evaluate HAP interventions, and to identify the indicators which HAP could use to evaluate the results and impacts of the sub-projects.

Once the information needs are identified, a sample of farming households participating in the sub-project activities could be developed. These households could then be tracked over time using standardized data collection methodologies which would allow a comparison of the changes (and reason for the change/lack of change) in these production systems across sub-projects and within and across watersheds.

The analyses of these data would provide valuable information which would be of use to farmers and project managers. The data could identify which approaches worked best and where resources had the most impact. Types of perennial tree crops most interest to farmers and their availability could be assessed. Adoption rates, impacts on productivity of farming systems, and increases in farm income could be attributed to project interventions. More importantly, policy needed to establish an enabling environment conducive to encouraging hillside farmers to engage in sustainable land-use management practices which prevent environmental degradation could be identified.

An effective MIS provides information that managers need to manage activities and report on results. Designing an IMS therefore begins with an assessment of the information needed for those purposes. Project managers then can focus on collecting information needed at the program and activity levels. This helps to avoid collecting extraneous information. It is emphasized that information needs are dynamic: managers must expect them to change over time.

Conclusions

The key component of any program which wishes to monitor and evaluate performance is a good baseline. The farm plan could well have served this purpose. HAP needed baseline information on its activities which promote improving the productivity of hillside agricultural production systems and increasing household incomes.

An effective MIS must produce the information that managers need to manage activities and report on results. Designing an MIS therefore begins with an assessment of the information needed for those purposes. Managers then can focus on collecting information needed at the program and activity levels.

Lessons Learned

Without an effective information management system which facilitates the collection and use of reliable data to determine the results and impacts of hillside agricultural programs, it will be difficult to develop appropriate and economically-viable mixed cropping systems which are of interest to small hillside farmers.

5.0 AGRICULTURAL PRODUCTION

The technical approach used by the HAP PMU was consistent with the over-all objectives of the project in promoting the planting and/or resuscitation of perennial tree crops. The technologies and practices were relatively simple and inexpensive, familiar to the farmers, and required few changes to their traditional production systems. HAP was successful in increasing the productivity of land areas planted in cocoa and coffee, both in pure and mixed stands, and also provided a significant number of other timber and fruit trees to farmers which have good market potential.

5.1 Impact

HAP successfully promoted perennial tree crops and better soil and water conservation which results in more efficient use of nutrients from organic and/or inorganic fertilizers, and can provide the farm household with a steady source of income. This resulted from a more holistic approach to improving hillside perennial tree crop production systems.

The flexibility of the HAP approach to sub-project design resulted in building on lessons learned by earlier sub-projects to design and implement latter sub-projects were much more responsive to farmers needs and demands. The long-term impacts of HAP will become more apparent as the perennial tree crops promoted by HAP and the improved management of these tree crops come into full production.

HAP, working through its 32 sub-projects, has made a significant impact on protecting Jamaica's fragile hillsides from degradation through the planting and/or resuscitation of over 6.5 million perennial trees on over 12,000 acres of hillside farms in 8 Parishes.

Hillside agricultural development programs are more likely to be sustainable when farmers: (a) have fairly secure land tenure; (b) have a positive attitude toward utilizing improved land-use management practices; and (c) are young and have a vested interest in the long-term viability of their mixed cropping systems.

5.2 Sustainability

HAP sub-projects were, in general, targeting the planting/resuscitation of cocoa and coffee trees which are traditional export crops. For cocoa, the international market prices do not provide the incentives needed to continue the use of improved management practices implemented under the HAP sub-projects. Therefore, HAP increased their efforts to promote the improved management of coffee stands, and evaluated numerous non-traditional perennial tree crops which could have a tremendous market potential, both domestic and international. Implementation of these types of interventions, especially in the latter sub-projects, are much more liable to be sustained by the farmers as markets are developed.

Hillside farmers will have a greater incentive to adopt better management practices and continue to use them under mixed cropping systems when it is likely that significant benefits will occur relatively quickly from the annual and fruit tree crops, and the perennial crops can be harvested as time and labor resources are available.

It is well known that farmers make rational decisions as to the management of their farming systems. HAP built their technical recommendations on traditional management practices familiar to farmers. Farmers will use information HAP provided when their resources permit if they perceive that their effort will provide benefits.

Strong local institutions and beneficiary participants are needed to ensure the long-term sustainability of hillside agricultural development programs which promote improved land-use management practices which include a supply of appropriate seedlings, necessary inputs, tools, and a support system to market the crops as production increases.

6.0 ENVIRONMENTAL PROTECTION

Many soil and water conservation measures have been instituted through HAP to reduce degradation of the environment in the targeted watersheds.

6.1 Impact

The most significant impact from HAP is the protection of over 12, 000 acres of fragile hillsides that now have an additional 6.5 million trees planted to conserve fragile soils through better canopy cover, improved soil stability, and decreased negative impacts from wind and rain.

Impacts from HAP's strategy for improving soil and water conservation and planting and/or resuscitating perennial tree crops are significant to the targeted watersheds.. Trees and their soil holding properties of their roots protect watersheds by reducing the flow of water over the soil and by holding the soil in place. Trees also reduce the forces of wind and rain. By obstructing the flow of water over the soil surface, trees also contribute to the build up of organic matter on the ground surface, increase the percolation of water into the soil profile, and bind the soil to prevent its loss by waterflow and the pull of gravity on steep slopes. Tree crops also have extensive root systems which catch and utilize nutrients from fertilizers applied to annual crops.

Efforts to promote soil and water conservation practices in these mixed cropping systems were based on increasing farmers awareness of the short- and long-term biophysical and socio-economic benefits. This was accomplished using well designed and maintained demonstration plots and farmer-to-farmer visits to sites where farmers are actively engaged in maintaining these technologies in their fields.

6.2 Sustainability

As natural forests are degraded due to charcoal production and the clearing for crop production, perennial trees with economic value are much more likely to be maintained. Therefore, HAP's focus on promoting the planting and resuscitation in the targeted watersheds is expected to have a significant impact on developing strategies for hillside agriculture in Jamaica.

The seriousness of soil and water erosion problems on most of the HAP sub-project land areas under perennial tree cropping systems appears to be over-estimated. Given that it is necessary to prevent future degradation problems, a focus on evaluating the variation in mixed cropping

system methodologies is critical to developing sustainable recommendations for hillside farmers to consider given their limited human and financial resources.

k/caribbea.fil/8000.020/anex_e.wpd/02/07/97

Assessment of Community Participation, Women and Young Adults (Youth)

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 The Evaluation

The purpose of this evaluation is to (1) assess the project's impact and performance toward achieving the project goal and objectives, as well as contribution to USAID's economic growth and environmental strategic objectives; (2) assess the prospects for HAP technologies' sustainability; (3) identify lessons learned from the HAP experience; and (4) identify potential activities for the future which might be developed based on the lessons learned and consistent with the Mission's environmental and economic growth strategies

1.2 Methodology Used

The methodology for this study involved two main strategies:

Review of Documentation

Extensive documentation related to the project was available at the PMU. USAID provided information on the Mission's Strategic Objectives for Jamaica which gave an understanding of USAID's program of activities for Jamaica.

Unstructured Interviews

These interviews were held at three different levels. First, with key officials of the Ministry of Agriculture and Mining (MOAM) and other agricultural related institutions. Secondly, at the sub-project level, field trips were made to 10 project areas and interviews were held with Local Management Committee members and the sub-project managers. Finally, field interviews were also held with a total of 32 farmers who are the project's beneficiaries. An unstructured interview guideline was developed and is attached at Attachment 1.

1.3 Project Goal and Strategies

The overall goal of the project is to increase the economic well-being of the residents of the hillsides in a manner that promotes rational land use patterns.

The project document outlined the following three-pronged strategy:

- Perennial Cropping,
- Improved Technologies, and
- Community Participation.

The assumption was that the project would overcome past deficiencies by focusing resources on:

- The specific purpose of increasing production and productivity by concentrating on a Community Based Approach that focuses on utilization of improved production technologies;

- Incorporating the needs and suggestions as perceived by farmers in the design and implementation projects in their own communities.

2.0 SOCIAL AND ECONOMIC DESCRIPTION OF THE PROJECT AREA

2.1 Demographic Data

According to the 1991 census produced by the Statistical Institute of Jamaica (STATIN), the population of the Parishes of the Project area broken down by gender, was 760,760 males and 802, 775 females. Women therefore accounted for 51.3 percent f the project area population. Like much of Jamaica, the area is relatively youthful, with 42 percent of the population under 18 years.

The project area is predominantly rural, with urban centers in the Kingston Metropolitan Area (KMA), Morant Bay, Port Antonio, Annotto Bay, Port Maria, St. Ann's Bay, Spanish Town, Bogwalk, May Pen and Mandeville. Not only are these parishes losing population to the KMA and external migration, like the rest of rural Jamaica they are also experiencing changes in their population distribution. Recent preliminary data from the Data Bank at the Ministry of Agriculture and Mining (MOAM) indicate that:

> *" the distribution of participants' household members showed that the 18 to 25 age group was significantly lower than the other age group categories. This suggests continued movement of this age group, out of the communities. This statistic was more pronounced for females"* (Data Bank, MOAM)

The Pencar\Buff Bay Watershed study which stretched across the parishes of western Portland and south-eastern St. Mary also found this occurrence. The assumption could be made that, with the dislike for agriculture among young adults coupled with the high unemployment rate and the traditional pattern of rural - urban drift, young adults might be moving to the 'urbanized' countryside towns or the KMA to find employment. On the other hand some of these townships such as Annotto Bay are now experiencing the "big city" problems of hard drug use and high incidence of teenage pregnancies.

2.2 HAP's Key Beneficiaries - Small Hillside Farmers

This section will discuss HAP's key beneficiaries who are small hillside farmers located in 8 of Jamaica's 14 Parishes (see map of Jamaica with boundaries depicting the project locations at Attachment 2). The project beneficiaries consists of 18,000 men, women and young adults in rural Jamaica. A more detailed description of the project's beneficiaries will be discussed in the

section on women and young adults. The Working Paper for an FAO-Investment Centre/World Bank Mission describes the small hillside farmers as constituting the largest proportion of the rural poor. However the term small farmer can be misleading as the government classifies farms below 25 acres in this category, but the poor among this group are generally those farming five acres or less. The Baseline Survey of IICA's Hillside Agriculture sub-project (HASP) stated that, the average farm size was 4 acres. Field trips to 6 sub-project sites and interviews with 32 HAP farmers revealed that the majority of plots ranged from ½ acre to 15 acres, while two farmers owned plots consisting of 35 and 40 acres. The farmer who owned 40 acres was a businessman and an ex- local government councillor. At the same time, it is often difficult to identify the poorest because some small farmers are also involved in several non-farm activities, including wage labor on farms, petty trading and other types of work at an urban center closest to his/her farm. Field interviews with farmers also recognized this linkage between the small farmer and non-farm activities such as teaching at schools in the local community. It is interesting to note that annual national Surveys of Living Standards (SLS) show that in the farming areas, poverty is about twice that of the urban areas.

Nationally, four categories are identifiable among the group of small farmers. First, the poorest farmers are likely to be in the hilly interior where they cultivate holdings of one acre or less, under insecure tenure (rental, lease or squatting) and also work as wage laborers for other farmers. They are also likely to include women household heads, who usually do higglering (domestic food crop traders), youths who have been given a small area for cultivation by their parents, and older farmers. The 1978 census found only 34% of farmers in the 0 - 1 acre category to be full-time farmers.

Secondly, in a slightly higher socio-economic status, but also including some of the rural poor, are the farmers cultivating 1-5 acres, who are full time farmers and account for 51% of all farms. These farmers also produce crops for the domestic and export markets.

The third category of small farmers, those cultivating 5 to 10 acres and share many of the characteristics of the previous group and are mostly richer, but oftentimes members of this group are classified as poor.

The final category of small farmers, those with 10 to 25 acres, are wealthier, with diversified holdings including livestock. Members of this group would not fall within the category of the poor farmers.

2.3 Family Structure

Except for the Social Soundness Analysis seen in the project document, relatively little information is available on farm and family characteristics over the ten year period of the HAP. Consequently, this section relies primarily on the HASP Baseline study Survey, the Pencar/Buff Bay Watershed Socio-Economic Study the FAO/World study reports and anecdotal evidence

from field visits. Findings from the HASP Baseline Survey indicate that about one-third of farm household heads are women. On the other hand, anecdotal information from farmers in the sub-project communities found most of the households were either based on a man and a woman in a conjugal union or a woman in single status, through widowhood. Information from the field also showed a consistent pattern of the "extended family" units, with some of the family formation consisting of three generation households headed by both men and women.

Within the agricultural sector female heads of households operate plots that are about half the size of men's, use less fertilizers and other modern inputs, and are usually heavily dependent on hired labor. These women are usually poor and supplement farm income with higglering. Anecdotal data from field trips also showed this consistent pattern.

2.4 Land Tenure

The current land tenure system originated during the colonial era. The most fertile lands were on the plains, and were allocated to the colonial settlers, who cultivated sugarcane. After the abolition of slavery the only land available to the freed slaves was in the hilly interior. Land is now held under the following arrangements:

- Ownership through purchase or inheritance;
- Rental on a short-term basis involving payment
- Lease for a fixed period, usually more than a year;
- Family land, belonging to a descent group and can normally be used by all
- Rent free, where the owner allows use at his pleasure without payment; and
- Squatting, termed "capture" in Jamaica.

According to findings from the HASP Baseline Survey 57-67 percent of farmers owned their land. Ownership of land was either through purchase or inheritance and a small amount of lands were leased and rented. While findings from the FAO/World Bank Study indicate that, among those farming less than 5 acres, which accounts for 77 percent of all farmers in Jamaica, only 50 percent to 60 percent of the land is owned. Anecdotal data from the field found only one squatter, who had obtained permission from the National Water Commission (NWC) to use the land.

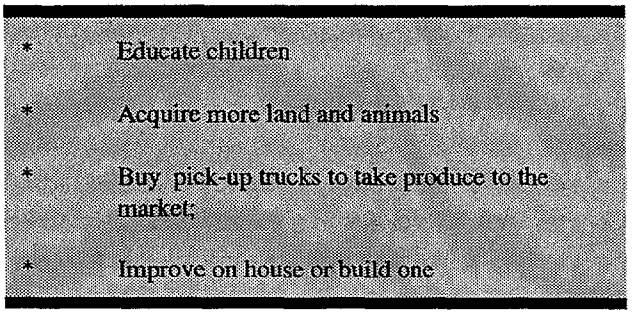
2.5 Age and Gender in the Project Area

The HASP Baseline study found no statistical difference in the mean age of male (54 years) and female farmers (57 years) while the 1992 Impact Evaluation of the Hillside Agriculture by

Tropical Research & Development, Inc. (TR&D), reported that the bulk of the farmers in the project area were in the 50-years to 80-years age group. On the other hand findings from the Data Bank survey indicate that, the overall mean age of HAP participants was 49 years and more than half of the HAP participants had over 20 years experience in farming. Participation of young farmers, below 30 years old, was below the national proportion of young farmers in agriculture. However, this participation level varied throughout the sub-projects.

2.6 Sources of Household Income and Savings

Relatively little information was available on the sources of household income and savings. However, the HASP study reports that a third of the farmers had access to off-farm income or wages and salaries contributed more income than other sources. The Forestry and Soil Conservation Department/MOA/CIDA study of the Pencar/Buff Bay Watershed area, (which incorporates the Long Road sub-project area), indicates that a coffee monoculture exists in this area, as the small and medium farmers who have made financial gains from working on the larger farms, have moved into coffee farming, as it constitutes a vital source of income. Anecdotal information from discussion with farmers in the project areas revealed, they received a marginal amount of remittances from family members who live locally and abroad. One farmer said, "she was not able to save, but she was able to make two ends meet." Farmers who were returning residents from the USA, Canada and England used their pension to subsidize their income from the farm. It was also reported in the HAP 1995 Retreat document that Long Road sub-project beneficiaries were consistently slow in making their credit union savings and only 26% of the farmers had actually joined the Credit Union. In addition, when farmers were interviewed in the field, very few reported that they had any tangible savings in banks or credit union. Consumption patterns for farmers in the sub-project areas were identified by one sub-project manager as follows:



2.7 Involvement of Family Members on Farm

Field trips among project farmers and discussions with sub-project managers revealed that farm wives are mainly involved in assisting their partners with reaping and weeding, while most of their

children have migrated to the urban centers or abroad. A few elderly farmers are now adopting young people to assist them on the farms. One farmer said "they help me, and I pass on my farming skills to them." A small number of children have their own plots and a few are individual HAP beneficiaries. However, in the majority of cases, they present themselves as having no interest in agriculture. This problem is further illustrated by anecdotal evidence.

HAP coffee farmer Mrs. M, with a ¾ plot, is 67 and has 14 children. Most of her children have migrated to Kingston, but those who have remained on the farm are not interested in agriculture and therefore she receives no help from them on the farm. She is unhappy about this situation, but continues to cook for them.

When questioned about the apathy towards farming among young people, one farmer gave the following explanation.

* They want to be involved, but they are landless,
* Children usually inherit their parents' land after their parents have died, and
* Children receive no incentives from their parents as they are expected to work without being paid.

2.8 Access to Credit

Since the 1980s, Jamaica's agricultural credit system has been rationalized with the creation of the Agricultural Credit Bank (ACB). Its major objective is to mobilize public sector financing for agricultural credit through affiliated participating financial institutions, the People's Cooperative Banks (PCB), as well as commercial banks. The bank has also been restructured and strengthened to improve the range of services provided to the farming community.

The HASP Baseline survey reports that 19 percent of farmers had obtained a loan for farming purposes. The majority of these farmers received their loan from a P.C. Bank (64%), used the loan to purchase plants (63%) and needed no collateral to secure the loan (44%).

Proportionally fewer women obtained credit than men, although just as many had applied. This indicates that even though women applied for loans their applications were more likely to be

rejected. Women however tended to obtain credit from informal savings and loan systems and from friends and relatives. Both male and female HAP farmers in the field said they received loans from the PC banks.

2.9 Access to Labor

According to the HASP Baseline study, seventy four percent (74%) of the farmers said that farm labor was available, but it was expensive or periodic. Field trips among HAP farmers revealed that they pay a daily rate which ranges between J$ 200 to J$ 350 per day. Interview response give the impression that, men hire more laborers and use more male and female laborers in farming than women do and men pay more per job than women do.

3.0 BENEFICIARIES' WILLINGNESS AND MOTIVATION TO ACCEPT PROJECT ACTIVITIES

Field visits and available documentation confirmed that HAP has been instrumental in changing farmers' attitudes toward hillside farming through the use of improved practices and new production technologies. Farmers who were more than 50 years old indicated that they were already aware of some of the soil practices before the project as they were exposed to this training at primary school. However, HAP demonstrated a number of new, low-cost innovations, which have been put into use by project farmers and appear to have been replicated. The farmers own statements of their acceptance, appreciation of new techniques and willingness of non-participants from outside the sub-project area, to learn HAP's new techniques is demonstrated below.

- I was aware of some of the practices from elementary school days, but I listened to the instructions and learned new ways from the HAP officer;
- One farmer said ".. this is the best thing to happen to farmers in the community, because HAP enlightened us..";
- One farmer clutched his heart and held on to a young cedar tree and said "...HAP means everything to me";
- One HAP beneficiary has started to train an apprentice farmer from Kingston who said "...I am learning farming because I am getting a piece of land to farm in upper St. Andrew..".

4.0 GENERAL CONSTRAINTS TO FARMING IN PROJECT AREA

Constraints associated with farming in the project area can be grouped into the following six clusters listed.

- Cluster 1 = inadequate cash flow;
- Cluster 2 = low prices, inadequate marketing system;
- Cluster 3 = transportation and poor road conditions
- Cluster 4 = labor: high cost and sporadic availability of farm workers
- Cluster 5 = inadequate extension service
- Cluster 6 = equity in the distribution of benefits

The HASP Baseline study identified low price, low market demand and lack of transportation as the most common marketing problems. Findings from the study indicated that farmers identified marketing problems for 35 different crops. Farmers also said they had not received any visits or advice from an agricultural officer and fewer women had received extension services than men. The high cost of labor and unavailability of workers when needed was also identified as a serious constraint.

These constraints are especially significant for farmers with less than 2 acres because they had less land, labor, credit and information either via extension or a farmers' organization. A large proportion of the farmers were women, who planted fewer trees, used less fertilizer, and practiced little or no erosion control. Their farms were very mixed systems which were more likely to have cocoa, bananas, goats (men) and poultry (women). Anecdotal information on the farmers' views on constraints to farming in the project area revealed the following:

Constraints to farming identified by farmers:

* Problems relating to marketing of produce and the need for a central depot in communities;
* High cost of labor and no workers
* Praedial larceny;
* Serious cash flow problem - farm not bringing in sufficient money;
* One female farmer said, ".. RADA is the major constraint, as the mileage allocated to the extension officer is inadequate..";
* Some farmers were unable to obtain land titles;
* Youth - lack if interest in farming and out-migration to the urban areas.

5.0 COMMUNITY PARTICIPATION

5.1 Rural Institutions

There are some traditional rural institutions such as labor groups (partner, 'day for day') and savings groups (also called partner), as well as formal ones such as farmer associations. The most important is the Jamaica Agricultural Society (JAS) which was established in 1895. It used to be the primary farmer organization for providing extension services and lobbying on behalf of farmers. However, it has virtually collapsed in recent years. There are a few other organizations such as church groups, 4H clubs, youth groups, womens groups and community associations, which have been involved in agricultural activities. More successful organizations are marketing cooperatives and credit unions and church related NGOs such as the Mel Nathan Institute which is connected to the United Church of Jamaica and UNITAS which is related the Moravian church of Jamaica. There are about 45 non-governmental organizations (NGOs) and 1500 community based organizations working in agriculture in the rural areas. The main problem, however, is that they do not have the staff or organizational structure and funds to finance their activities.

5.2 Definition and early attempts of community participation

This paper views community participation as a dynamic set of activities through which communities become involved in influencing projects for their development, starting with community consultation with beneficiaries and ends with the community's 'empowerment' with resources and information.

Jamaica's first attempt to promote community participation began in 1937 with the establishment of Jamaica Welfare Ltd. This was the first NGO, which was intended to improve rural life through grass roots development programs, (Girvan 1993). The failure of some of these earlier attempts, and lack of continuity of most CBOs have led some commentators to suggest that Jamaicans are individualist and unable to work in groups. But many group ventures have been successful, such as commodity marketing cooperatives and most credit unions.

5.2.1 Socio-Political Constraints to Participation

The political structure has been a major obstruction to effective community participation. It has been described as clientalistic in nature, "*...one in which individualistic, asymmetrical, instrumentalist patron-client relations dominate most areas of social life and action.*" (Koen, et-al 1989). Governments have encouraged the patron-client relationship through CBOs and development projects. Farmers have also become dependent on the local Member of Parliament (MP) to gain off- farm employment. In addition, it is often found in some communities that, a narrow circle of local leaders dominate the local organizations, such as the JAS, Marketing Cooperative and HAP Local Management Committee. Farmers therefore do not get the

opportunity to 'participate' and the dependency syndrome that has been created is the opposite of self-reliance.

Social systems were stronger during the 1940's and '50's, however an important cause of the breakdown was the massive migration from rural areas between the 1950's and first half of the 1960's, to Kingston and the United Kingdom (and later to North America). This resulted in dislocation particularly in the family structure, as well as in relationships at district levels.

5.3 Community Participation in HAP

5.3.1 Project Design in Relation to Community Participation

Community participation activities in the project document were stated as follows:

- The project will be implemented under mechanisms designed to grant funds directly to support sub-projects;
- A decentralized approach will be undertaken which allows for maximum community participation;
- Sub-projects' will be implemented by managing entities who will provide the link between the PCC and the farmers
- The three-pronged strategy will be implemented through:
  - -Administration of grants to groups to undertake sub-projects;
  - -Provision of technical assistance and training to individuals and groups participating in the sub-projects;
  - -Networking of individuals and groups involved in project activities and coordination of all functions (eg. workshops, newsletter and technical inputs).

However, the design of the project was narrowly focused and not clearly defined, as the project document referred only to *"networking among individuals and groups involved in the project"*. The project document was therefore not consistent with the goals of community participation.

As a consequence, the project activities relating to community participation in the project document did not include an appropriate community development model to guide the implementation of the sub-projects. All sub-projects therefore, in establishing the LMCs, tried to incorporate a community participation approach which included representatives of local farmers and distinguished community leaders. However, in the true sense of the 'bottom up approach', which the HAP strategy described, community participation should have started at the problem-identification or planning stage, and continue through project design, implementation, monitoring and evaluation. Thus, if sustainability was to be achieved, the farmers would have been involved in all the stages. They also should have been convinced that the project belonged to them.

The Project Implementation Letter No. 79 which incorporated topics of interest to women, with particular emphasis on marketing, processing and cottage industry did not include an Action Plan or a schedule of activities for implementation. The PIL did not contain any formal action for the inclusion of youth in the Hillside Agriculture Project.

Since community participation and farmer involvement is the foundation on which institutional sustainability of the project must be based, the logical framework was therefore not appropriate to guarantee the Hillside Agriculture Project's sustainability.

5.3.2 Role of Community Organizations in Community Participation

The sub-projects that were most successful in establishing a measure of farmer involvement were those in which the facilitating agency was an existing strong local organization, such as an NGO, CBO or a marketing cooperative which already had strong communication links with farmers. These types of organizations were the only ones which had a built-in structure capable of continuing some of the project activities beyond the closure of the project. Anecdotal information from farmers in the field demonstrated that in some cases members of the group met after the project ended, but they were still dependent on receiving resources from the project. The profile below of the Mammee River Agricultural Development sub-project is used to demonstrate the characteristics of a unique and dynamic process of community participation. The following elements were identified:

- A creditable community based organization, known in NGO circles in Jamaica as an organization which is strongly motivated to take on its own development, was used to anchor the sub-project;
- A unique hillside sub-project made up of distinct communities with a western section consisting of a few part-time farmers who are professionals that commute daily to their offices in Kingston. The eastern section (where the majority of farmers live), follows the Mammee river basin and proceeds deeper into the hills of rural upper St. Andrew;
- Farmers of all ages and gender participated, as they were convinced of the profitability of investing in a high price crop such as coffee and had three secure markets consisting of two private sector companies and the Coffee Board;
- Most farmers were young (less than 45), had secure land tenure, and an effusive and positive attitude toward farming;
- An LMC which consisted of farmers and professionals who lived in the area and were active resource persons;
- Community participation approaches which used networking with supporting agencies, individual contacts, community group meetings with farmers, women and young adults, demonstration plots, field tours, agro-processing, tool pools and sustainability;

The Mammee River Agricultural and Environment Development Sub-project (MRAEDS) was launched in February of 1993 and came to an end in June of 1996. The implementing agency - Jacks Hill community Council, a CBO for the upper Jacks Hill area of St. Andrew, functions as the implementing agency for the sub-project. Principals crops grown are coffee, banana, vegetables, tubers, pimento and timber. These crops are grown mostly on very steep and shaley hillsides. Many young people have migrated to the nearby KMA urban area.

Objectives:
Encourage people towards farming and employment opportunities and training, especially the younger farmers;
Improve the quality of life and standards of living in the communities;
Strengthen community organizations;
Ensure sustainability of sub-projects activities in the prescribed areas and their environs;
Sensitize farmers and their families to understand, value, appreciate and help preserve the environment.

Local Management Committee
The LMC which was made up of individuals from the local level and consist of local farmers and professionals who live in the area. The old leadership was recently energized and reconstituted into a more dynamic council with leadership which was responsible for submitting a proposal to EFJ for funding.

Networking With Supporting Agencies
In order to get the sub-project started and to sustain its activities beyond the end of the sub-project, emphasis was placed on networking among the schools within the area, churches, Jacks Hill Community Youth Club and the groups of women connected to RADA's Social Services/Home Economics Program.

Marketing Approach
Because MRAEDS operates in an area which is near to Kingston, it has very few marketing problems. Marketing of preserves are done by groups through RADA at their Craft/ Preserved Centre. Produce are taken to Papine, Cross Road and Coronation Markets.

Involvement of Young Adults
A group has been created for participating young adults between the ages of 15-30. Some are still attending schools (15-17 years). Ninety five students are involved and training in plant propagation. Site visits to other projects and plant nursery practices (with a view to setting up nurseries in the communities) are provided through the 4-H Club in Jacks Hill.

Involvement of Women
Women's groups from RADA's Social Services and Home Economics program are deeply involved in the sub-project. Seventy women are involved in planting fruit trees and coffee. RADA's women's groups are involved in agro-processing activities such as the production of preserves. RADA's outlet is responsible for marketing these articles. With the assistance of the Canadian University Services Overseas (CUSO), women are involved in a Revolving Loan Fund (RLF) to promote micro-enterprise as businesses.

Tool Pools
Two are established in sub-project communities.

Sustainability
The Jacks Hill Community Council has received funding from EFJ to continue the sub-project. Plans include, continuation of the tool pools, setting up and operating a central marketing outlet and a nursery

Findings

- Design of the project was not consistent with a strong community development process;
- Farmers were not consulted with during the design stages of the sub-projects;
- Absence of discussions with farmers during the design stage of the project may have resulted in many seeing the project as the usual conduit for "hand-outs";
- As the sub-projects ended most LMCs also dissolved as farmers felt they had already received whatever benefits were forthcoming;
- The sub-projects that were most successful in anchoring themselves in the communities were those in which the implementing agency was an established local organization with existing strong links with farmers;
- Some sub-projects were located in pockets of isolated communities separated by hills and bad roads without adequate transportation or radio communication;

Conclusions

Community participation is viewed as a dynamic set of activities through which communities become involved in influencing projects for their development, starting with community consultation with beneficiaries and ends with the community's 'empowerment' with resources and information.

The sub-projects that were most successful in establishing a measure of farmer involvement were those in which the facilitating agency was an existing strong local organization, such as an NGO, CBO or a marketing cooperative which already had strong communication links with farmers.

The LMC experience is one step in an evolutionary process towards community development. The institutional impact of the project would have been more positive if the community process was structured to assist LMCs to properly organize groups, to provide community leaders with training in group management and to prepare the LMCs to 'stay the course' after the project ends.

Lessons Learned

Sustainable agriculture programs are more likely to be successful when farmers (a) are affiliated with an established local organization (b) have a positive attitude toward farming and (c) are young.

To ensure the project's sustainability, the institutional capacity at the local level should be strengthened and leaders trained in proposal writing and project management.

6.0 PARTICIPATION OF WOMEN IN AGRICULTURE

This section is a summary of the IICA - IDB 1996 report on Rural Women Food Producers in Jamaica. The report assesses the role of women in the agricultural sector and as food producers in small scale farms, and the effects of the agricultural policy and programme environment and its effects on rural women.

6.1 The Contribution of Women to Food Production

On the surface agriculture may appear to be a male dominated activity in Jamaica. However, on close examination there is overwhelming evidence that women make a significant contribution to agricultural output. Today, as in the pre-emancipation period when they controlled the provision grounds, women are intimately involved in food production and processing to feed their families and also for trading in the market-place. They are represented in the agricultural labour force as own account farmers, unpaid family labourers, and also paid agricultural workers. Measurement of this involvement in official statistics has been limited and generally grossly under-estimated. A reassessment of this contribution based on the available secondary data reveals that a much higher percentage of women, than commonly acknowledged are involved in agricultural production.

Women in farm households play a critical role in the growing, processing, and marketing of domestic food. Taking into account women farm operators, wives and daughters who join in farming as unpaid family workers, female farm laborers, higglers and women engaged in both community-based and commercial agro-processing, Jamaican women make an impressive contribution to overall agricultural production.

When the employment of women in the total labour force is examined, it is clear that agriculture is one of the principal areas in which they are represented. Data on employment by sector and gender for Jamaica in 1995, shows the agricultural sector as the second major employer of women next to the general services sector. Similarly when the top ten occupational groups and categories for female are placed in rank order agriculture appears in the top three (Economic and Social Survey 1995 , PIOJ).

6.2 Characteristics of the Participation of Women in Food Production

In Jamaica the majority of women in agriculture are poor small farmers, with average farm size being significantly less than for men. Any limitations of small scale agriculture, therefore affect proportionally more women than men.

Both male and female small holders concentrate their efforts on domestic crops in their farming systems which include a mix of food crops, livestock and some export crops such as cocoa, coffee or pimento.

The Ministry of Agriculture's Baseline Survey, conducted in the western region in 1988 indicated that women shared responsibility with men in undertaking tasks such as land preparation, planting, weeding/maintenance, application of fertilizer, harvesting, preservation/processing, management of livestock and marketing of crops and livestock.

Results from the "Women Food Producers Survey" conducted for this study also confirmed a high level of participation women in agricultural food production activities. Out of the total of 150 respondents, 49 percent participated in at last one activity related to yam production and 73 percent in growing vegetables. These activities ranged from purchasing/preparation of planting materials and land preparation to harvesting. Forty-eight percent (48%) also participated in at least one on farm processing activity and in marketing of produce. It should also be noted that more than 70 percent of most of the major food crops grown were marketed. Approximately 67 percent of the respondents were also involved in livestock rearing, mainly small stocks and poultry, with just a few cattle.

Decision-making in respect of farm-management was also very high with 77 percent reporting that they independently made production and management decision. This relates to the fact that 55 percent of the farm households surveyed were headed by women and 48 percent of the all female respondents were themselves house-hold heads.

Based on the assumption of a 40 hour work-week (though most of the women worked for much longer hours) the women's time was almost equally divided between productive and reproductive activities (mainly child care and food preparation). Only 7 percent of the respondents reported that men in their households participated in domestic chores.

6.3 Obstacles to Participation

Small farm production units in general are constrained by limited access to productive resources; namely land, labor and capital. These farms have also been adversely affected by inadequacies of rural infrastructure in the form of roads, irrigation facilities (where this can be applied), and marketing distribution network. A low level of technical knowledge and minimal technology transfer, which results from poor extension and research linkages, have also constituted a major hindrance to increased production and productivity.

Women farmers have consistently been found to be at a greater disadvantage than their male counterparts in respect of access to land, credit and technology.

Among the respondents in the Women Food Producers Survey average farm size was less than 5 acres and less than 20 percent owned the land on which they farmed or had their names on the title. Approximately 33 percent were operating on family land and only 2 percent had joint ownership with their male spouse. Only a minimal number (less than 10) had received credit and only a small percentage (less than 20 percent) had received agricultural training.

Among the respondents in the survey, average farm size was less than 2 acres and less than 20 percent owned the land on which they farmed or had titles in their names. Approximately 33 percent were operating on family land and only 2 percent had joint ownership with their male spouse. Only a minimal number (less than 10) had received credit and only a small percentage (less than 20 percent) had received agricultural training.

The principal problems they identified as hampering their operations were inadequate labour (61 percent) and lack of financing (57 percent) and about 7 percent pointed to gender discrimination.

Interestingly, the majority of respondents in the survey saw farming as a business, and though many had ambitions for their children to become "professionals" some did indicate that they would encourage their daughters to become farmers.

6.4 The Participation of Women in the HAP

The original project design did not specifically identify women as a target group. This was added at a later date in PIL No. 79, dated October 5, 1992, based on the recommendations from the 1992 Impact Evaluation conducted by Tropical Research and Development Inc (TR&D).

6.5 Level of Involvement

Preliminary data from the MOAM's Data Bank indicates that the overall proportion of female participant farmers across ten sub-projects was at 22.5 percent, above the national estimate of 19.3 percent for the proportion of women farmers identified in the last STATIN survey. The HASP baseline survey indicates that the percentage of female farmers (27%) was substantially higher for other studies (12%, STATIN, 1989 or 19%, HAP 1990). On the other hand, under reporting might have occurred in the national estimate, as the 1996 IICA/IADB study on Women Food Producers in Jamaica re-evaluated estimations of women's employment in the sector and revealed that the actual number of women working in agriculture is more than double the official figure and is close to the 55 percent level recorded by the National Census before it changed the definition of "gainful employment".

The HASP survey also found that there was no statistical difference in the mean age of male (54 years) and female farmers (57 years) and the distribution of the ages was similar by gender.

Preliminary data from MOAM 's Data Bank suggests a pronounced mobility in the female population, age 18 to 25. This data corresponds to national rural - urban trends and the tendency to move to the rural parish townships and the KMA.

HAP data on the percentage of young persons and women as beneficiaries in on-going sub-projects as indicated in the Table I below, shows that the level of involvement of women varies

according to the sub-project. With the upper end at 32 percent for the North St. Mary sub-project and the lower end at 17.7 percent for the Long Road sub-project.

Table I
Percentage of Young Persons and Women as Beneficiaries in on-going sub-projects

Sub-project	Beneficiaries	Young Persons	Percentage	Women	Percentage
Long Road	464	67	14.4	82	17.7
Mammee River	354	115	32.5	70	19.8
Trinityville	723	183	25	N/Av.	
W. St. Andrew	1027	123	12	N/Av.	
Longville	N/Av.	N/Av.	N/Av.	N/Av.	
Blue Mtn. Coffee	225	34	15	66	29.3
W. St. Mary		N/Av.		N/Av.	
Plantain Garden	211	40	19	N/Av.	
N.W. Portland	547	191	335	N/Av.	
N. St. Mary	532	202	38	170	32
W. St. Ann	475	29	6	126	25.5
Mid-Island		N/Av.		N/Av.	
Wood Hall	215	34	15.8	55	26.6
St. AABS	220	110	50	44	20
East St. Ann			N/Av.		N/Av.

6.6 Obstacles to Participation

An important segment of the farm population in the project area is women who head households. It has been documented that they are among the poorest farmers and the cost of hiring labor is a major constraint. Access to credit is another area in which women are disadvantaged as land tends to be in their husband's name or a male relative's, so few women have land titles that can be used as collateral. However, because of the risks involved many male farmers who possess a title are unwilling to risk it as collateral for loans and women are unlikely to behave differently. The HASP baseline study found that fewer women obtained credit than men, although just as many

had applied (13%). This indicates that even though women applied for loans their applications were more likely to be rejected. However, women tended to obtain credit through the informal sources of 'partner' or family and friends.

It is also interesting to note that, as was the case with female farmers, male farmers with smaller landholdings were less likely to obtain credit than those with larger holdings, even though the percentage of farmers that had applied were similar.

In the marketing and distribution of domestic food crops, women play a distinct role as the majority of traders involved in the marketing of domestic food crops (higglers) are women. A large number of women farmers also market their produce directly in local markets as higglers. Income from higglering is generally quite low, while higglers operate under poor working conditions in the markets and are subjected to bad roads and poor transportation.

6.7 HAP Strategies to Encourage the Participation of Women

HAP strategies to encourage the participation of women were evident in the Mammee river sub-project area where the project manager collaborated with community leaders from RADA's Social Services/Home Economic women's groups to mobilize the farmers in the community.

This division of RADA which has farm families and women as the principal target groups has also been undertaking a number of activities complementary to the overall extension thrust. The operations of this unit is described below:

RADA'S Social Services/Home Economics Program

Overall Objectives

Enhance the total well being of the family members in the context of a stronger and more productive family unit, and an improved quality of life for all the members of the community.

Specific Objectives

* Assist rural women and young adults to develop small or cottage type industries to provide employment with economic returns;
* Assist rural women and young adults to develop marketable skills in order to render them employable;
* Assist family members to increase agricultural production by which they can improve the quality of family meals as well as increased income;
* Assist rural women to improve the management in the performance of household activities in order to effect savings.

Marketing of craft and agro-processing items

An outlet for rural women's produce from women's groups is located at RADA's training complex on Hope Road. Items such as jellies, jams, pickles spices, cassava products, dasheen and plantain chips and traditional Jamaican craft items. Cassava products and dasheen chips are sold directly supermarkets in Kingston.

Donor assistance

FAO has provided technical assistance to train staff and rural women in agro-processing techniques and establishing, commercially viable projects for a range of processed products. UNICEF has also provided funding for a project in Trelawny.

6.8 Strategies to further Encourage the Participation of Women

Promotion of agro-processing and micro-enterprises could be explored as a significant potential exists for off-farm income generating activities such as agro-processing. However, RADA's Social Services and Home Economics program should first be evaluated. Group ventures can be promoted, but these should be organized as businesses. Technical assistance in small business management could be provided and various financing sources such as the P.C. Banks and credit unions should be explored.

Skills training and agro-processing centers could be established at the parish levels. This would provide business and technical training for women who are interested in starting micro-enterprises individually, or as part of a cottage industry group.

Findings

In the farm household in Jamaica men are more involved with the more physically demanding tasks of land preparation, planting and weeding, while women's major responsibilities are for reaping, weeding, marketing and household chores.

- The original project design did specifically identify women as a target group. This was added in Project Letter No. 79, dated October 5, 1992;
- Since women play a distinct role in the marketing and distribution system more women would have benefitted if the project had placed more emphasis on the marketing and distribution of produce and cottage industry types of activities utilizing fruits;
- Women have played a distinct role in the LMCs, and in the marketing and distribution of farm products in project areas;
- Promotion of micro enterprises with RLS and technical assistance in business management.
- The 1996 IICA/IADB study on Women Food Producers in Jamaica which addressed a re-estimation of women's employment in the sector revealed that the actual number of women working in agriculture is more than double the official figure of 22-32 percent, but close to the 55 percent recorded before the National Census change in the definition of "gainful employment.
- Women have played a distinct role in the LMCs, and in the marketing and distribution of farm products in project areas;
- Under RADA's Social Services/Home Economics program, active women's groups are located in some of the project areas and are involved in sub-project activities. These activities include, the planting of fruit and coffee trees and agro-processing of preserves. The agro-processing activities are sustainable, as sale of these articles are done at RADA's Hope Road outlet in Kingston.

Conclusions

More women would have benefitted from activities relating to marketing, agro-processing and cottage industry development if RADA's Social Services/Home Economics program was formally integrated into all sub-projects.

Lessons Learned

Women tend not to be fully integrated into project activities which promote their participation, unless their participation are planned and funded at the design stage of the project.

7.0 PARTICIPATION OF YOUNG ADULTS (YOUTH)

7.1 The Rural Young Adult

From HAP's perspective youth is defined as school age children and young adults, with an age range of 14 - 25 years. Unemployment among the young adult population is much higher than in the general population and for females it is twice that of males. For example in the 14 - 19 age group, the 1993 unemployment rate for males was 26.2 percent and for females it was 59.9 percent. Unemployment is also more acute in rural areas, where a small amount of youth are involved in farming, as evidenced by significant shortages of family labor. This is mainly due to the low returns in small farmer agriculture, lower status ascribed to farming in the society and the strenuous nature of farming activities. In addition, parents expect their children to help them on the farms, but invariably they receive little compensation, while others are given small plots from which they are unable to earn sufficient returns. However, as employment opportunities in the urban areas continue to dwindle, many youths have realized that they must seek a living in the rural areas. This has been noticeable over recent years and became evident during the field trip discussions with 'parent farmers'. For example one farmer said her 21 year old son returned home from Montego Bay where he was working in a hotel and is now extensively involved in agriculture on the family land. This young farmer is now a HAP beneficiary.

7.2 Level of Involvement

Youth involvement in HAP began to receive increased emphasis in 1989 when UNITAS became a sub-project. This sub-project created a component which addressed, the motivation of young people to become involved in agriculture. The belief was that *"...improved income and a change for a better life should motivate young people to embark upon agriculture as a career".* In addition, TR&D's 1992, Impact Evaluation of HAP, suggested that the UNITAS experiment with youth, provided a good example for youth involvement in the sub-projects. Consequently, USAID's 1992 PIL, also added youth as a special target group in the sub-projects.

This focus also coincided with RADA's earlier involvement with the school garden resuscitation program, which the sub-projects targeted. HAP reported that, as of September 1996, 15 sub-projects have been involved with the school garden program in 37 schools and in some instances, the school garden was used to establish demonstration plots. This experience has not met with much success. However, a few sub-projects, such as the Trinityville Area Tree Crops Development and the North West Portland Coffee Resuscitation sub-projects have had successful school garden projects. The 1995 HAP Retreat document reported that, in the Trinityville sub-project, three schools were involved in the "adopt a tree by each child" program. At Robert Lightbourne High, a 15-acre farm is attached to the school and a ½-acre plot is devoted to the sub-project which provides seedlings, fertilizer, and soil conservation training. A number of young adult farmers (male and female) between the ages of 25 - 35 years have also been targeted by this sub-project. The 1995 Retreat document also highlighted the following:

> Before HAP the young adults had no land, but since HAP's inception, they are able to lease or rent land from family members and are now involved in establishing new crops under the sub-project.

Secondly, the North West Portland Coffee Resuscitation sub-project reported that:

> The sub-project worked with one school to establish a nursery for coffee seedlings. They successfully produced 2,000 seedlings and the sub-project has purchased all the seedlings that the school has produced.

Sub-project managers reported, the overriding factor which contributed to successful school projects are school principals, agricultural science teachers and parents who are interested in agriculture. The 1995 HAP Retreat document reported that, in the North West Portland Coffee Resuscitation sub-project communities:

> Before HAP, young men in the communities were employed by the large coffee farms as farms workers, but with the onset of the sub-project, they are now able to access coffee seedlings which otherwise would have been too expensive for them to purchase. Consequently, they are now able to increase coffee production on their little plots. In addition, thirty five percent of all farmers (male and female), now operating under the sub-project are under 35 years of age. The sub-project manager found the young adult farmers to be highly motivated to farm coffee, as they received good financial rewards.

On the other hand, factors which account for the low success rate of the school garden program was revealed by anecdotal information from farmers in the field who said that ".. *some children are unable to participate in agriculture because they are landless, as they can only access their parent's land, after their parents have died*". Secondly, RADA's coordinator for the school garden program reported that, the program's main constraints are the lack of support from some principals and agricultural science teachers. In addition, the school garden program was not integrated into the curriculum as an activity. The coordinator further disclosed that, school children preferred to plant trees on their 'family land', rather than on the school compound.

7.3 Strategies to Encourage Further Participation

- The support of school principals and agricultural science teachers and integration of the school garden activities into the curriculum;
- Enlist the support of parents and school children, by communicating the objectives of the school garden program to them.

Findings

- Low status ascribed to farming in the society;
- Unavailability of land;
- How land is passed on by parents to their children;
- Failure of parents to provide incentives to children when they assist them on the farm;
- Young people prefer to plant trees on family land rather than on the school compound;
- School principals and agricultural science teachers have not fully supported the school program.

Conclusion

Constraints to the school garden program include attitudes of parents, principals and agricultural science teachers and the fact that, the school garden program was not integrated into the curriculum as an activity.

Lessons Learned

The importance of involving all stake holders in the community to impart developmental messages.

8.0 FINDINGS, CONCLUSIONS AND LESSONS LEARNED

8.1 Community Participation

Findings

- Design of the project was not consistent with the objective of community participation;
- Farmers were not consulted with during the design stages of the sub-projects;
- Absence of discussions with farmers during the design stage of the project may have resulted in many seeing the project as the usual conduit for "hand-outs";

- As the sub-projects ended most LMCs also dissolved as farmers felt they had already received whatever benefits were forthcoming;
- The sub-projects that were most successful in anchoring themselves in the communities were those in which the implementing agency was an established local organization with existing strong links with farmers
- Some sub-projects were located in pockets of isolated communities separated by hills and bad roads without adequate transportation or radio communication;

Conclusions

Community participation is viewed as a dynamic set of activities through which communities become involved in influencing projects for their development, starting with community consultation with beneficiaries and ends with the community's 'empowerment' with resources and information.

The sub-projects that were most successful in establishing a measure of farmer involvement were those in which the facilitating agency was an existing strong local organization, such as an NGO, CBO or a Marketing Cooperative which already had strong communication links with farmers.

The LMC experience is one step in an evolutionary process towards community development. The institutional impact of the project would have been more positive if the community process was structured to assist LMCs to properly organize groups, to provide community leaders with training in group management and to prepare the LMCs to 'stay the course' after the project ends.

Lessons Learned

Sustainable agriculture programs are more likely to be successful when farmers (a) affiliated to an established local organization and (b) have a positive attitude toward farming (c) are young.

To ensure the project's sustainability, the institutional capacity at the local level should be strengthened by creating farmers' interest groups.

8.2 Participation of Women in Agriculture

Findings

In the farm household in Jamaica men are more involved with the more physically demanding tasks of land preparation, planting and weeding, while women's major responsibilities are for reaping, weeding, marketing and household chores.

- The original project design did specifically identify women as a target group. This was added in Project Letter No. 79, dated October 5, 1992;

- Since women play a distinct role in the marketing and distribution system more women would have benefitted if the project had placed more emphasis on the marketing and distribution of produce and cottage industry types of activities utilizing fruits;
- Women have played a distinct role in the LMCs, and in the marketing and distribution of farm products in project areas;
- Promotion of micro enterprises with RLS and technical assistance in business management.
- The 1996 IICA/IADB study on Women Food Producers in Jamaica which addressed a re-estimation of women's employment in the sector revealed that the actual number of women working in agriculture is more than double the official figure of 22-32 percent, but close to the 55 percent recorded before the National Census change in the definition of "gainful employment.
- Women have played a distinct role in the LMCs, and in the marketing and distribution of farm products in project areas;
- Under RADA's Social Services/Home Economics program, active women's groups are located in some of the project areas and are involved in sub-project activities. These activities include, the planting of fruit and coffee trees and agro-processing of preserves. The agro-processing activities are sustainable as sale of these articles are done at RADA's Hope Road outlet.

Conclusion

More women would have benefitted from activities relating to marketing, agro-processing and cottage industry development if RADA's Social Services/Home Economics program was formally integrated into all sub-projects.

Lessons Learned

Women tend not to be fully integrated into project activities which promote their participation, unless their participation are planned and funded at the design stage of the project.

8.3 Participation of Young Adults (Youth)

Findings

- Low status ascribed to farming in the society;
- Unavailability of land;
- How inheritance is passed on by the parents;
- Failure of parents to provide incentives to children when they assist them on the farm;
- Young people prefer to plant trees on family land rather than at their schools;

- School principals and agricultural science teachers have not fully supported the school program;

Conclusions

Constraints to the school garden program include attitudes of parents, principals and agricultural science teachers and the fact that, the school garden program was not integrated into the curriculum as an activity.

Lessons Learned

The importance of involving all stake holders in the community to impart developmental messages.

Attachment 1

HILLSIDE AGRICULTURE PROJECT
INTERVIEW GUIDELINE
KEY AREAS OF FOCUS

LMC

1. Name of Implementing Organization
2. Farm income and standard of living profile on participating communities before and after sub-project
3. Have participating farmers changed traditional cultivation practices on plots not supported by HAP?
4. Numbers of participating farmers in organization before and after HAP
5. Who were the project's key beneficiaries?
6. Numbers by gender
7. How did they benefit
8. Were Women and young people active participants?
9. Were there specific obstacles to their participation? (if so)
10. What strategies did HAP use to encourage their participation
11. How could participation of women and young people be encouraged?
12. Were marketing and processing linkages adequately integrated into the project? Give examples?
13. Identify and assess the role that community participation played in formulating sub-project requests (outline each step)
14. Identify and assess the success of Local Management Committees
15. Identify and assess sub-project beneficiary selection and benefit distribution
16 How could project impact have been enhanced
17. Identify and assess monitoring and evaluation and sustainability of sub-projects

FARMERS

1. Social and economic data on farm household - age structure, number of children, sex, level of education, income from agricultural production of crops, off-farm employment, land tenure, health status, housing and social amenities
2. Involvement and role of each member of the family through stages of crop production from land preparation, harvesting and marketing
3. What benefits they received from sub-project
4. Specific involvement of women and young children
5. Were Women and young people active participants?
6. Were there specific obstacles to their participation? (if so)
7. What strategies did HAP use to encourage their participation
8. How could participation of women and young people be encouraged?

9. Assess willingness and motivation of farmers' to accept project activities, interest in sub-project activities - including changes in traditional cropping patterns, to cultivate perennial crops and group participation etc,
10. Relationships with credit institutions (formal and informal)
11. Constraints to farming
12. Motivation and Attitudes to farming, group participation (project and non project)
13. Membership in Farmer Organization
14. Plans to maintain continuity of project's success

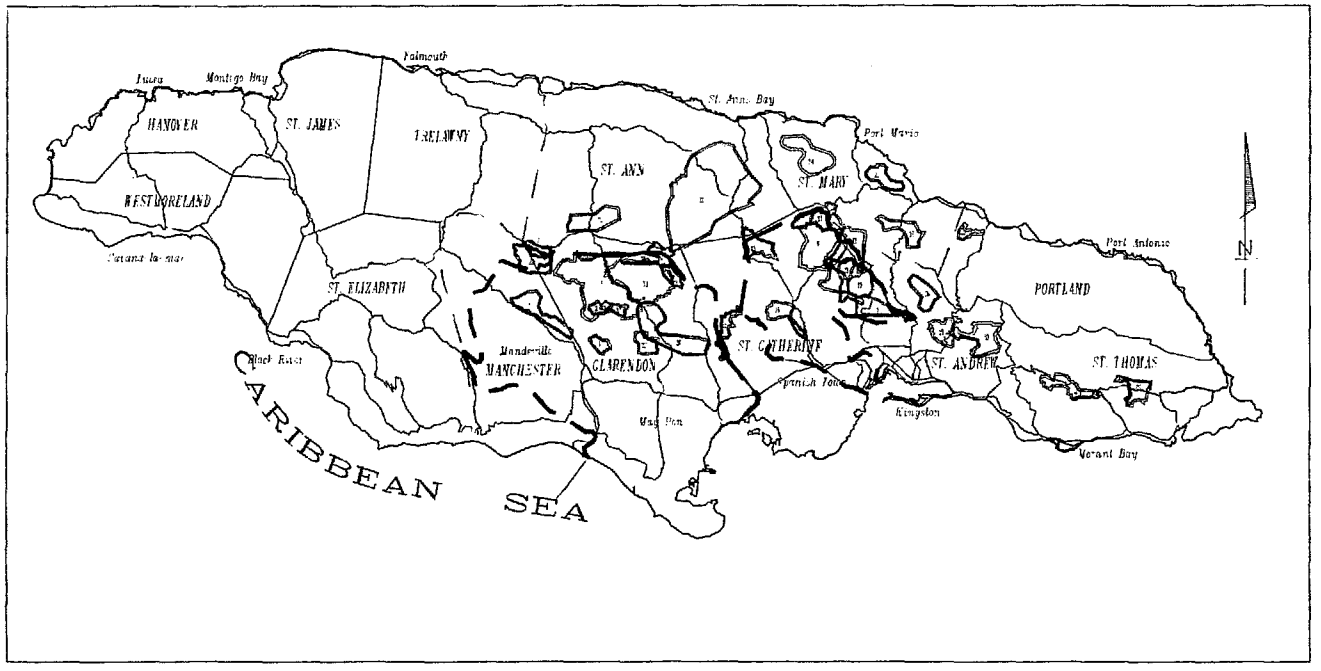
k/caribbea.fil/anex_f.wpd/02/10/97

Attachment 2

HILLSIDE AGRICULTURE PROJECT AREAS

Scale 1:1400000

JAMAICA



1	ELGIN (JAS)
2	WINDSOR (JAS)
3	HEATHWOODS (JAS)
4	MANGO VOR--WORKING
5	WID MEDIO COCOA EXT
6	MINAG/TCCA
7	ABOVE ROCKS
8	MANCHESTER RADA
9	UNIBAN OF JA
10	AGRO-FORESTRY (ST. CATHERINE)
10	AGRO-FORESTRY (CLARENDON)
11	ST. MARY COCOA SUPPORT
12	NORTH WESTERN ST CATHERINE
13	GUYS HILL COFFEE
14	MINAG CLARENDON PROCESSING
15	BERNARDO RADA
16	GIBRALTORE RADA
17	"BOTH" HILL/KELLITS
18	LOW, ROAD & ENTRIGOS
19	MARIGOLD RIVER
20	WINT ST ANDREW
21	TRINITY/TULE
22	LOGWOOD
23	NORTH ST MARY
24	EASTERN ST MARY TREE CROPS
25	PLANTAIN GARDEN
26	HIGH HI COFFEE BENUS
27	NW PORTLAND COFFEE BENUS
28	WEST ST ANN COFFEE BENUS
29	WID ISLAND TREE CROPS
30	MANTE PARK
31	SOUTH WEST & UPPER DIV
32	EAST ST ANN BENUS

Roads

Parish Boundary

County Boundary

Coast line

Project Area Boundary

Watershed Boundary

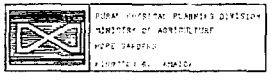


TABLE OF CONTENTS

Annex G: Report of the Agricultural Economist

1.0 AGRICULTURAL IMPACT

1.1 Cocoa

1.1.1 Cocoa Production and Pricing

Essentially, there was no change in the marketed production of cocoa in Jamaica during the 10 years from 1984 to 1994, with the exception of a sharp decline caused by Hurricane Gilbert and the recovery back to previous production levels. Marketed cocoa production reached a plateau of about 2500 metric tons in 1984/85 and remained there until 1988/89, when Hurricane Gilbert caused production to drop 60 percent to less than 1000 metric tons. By 1991/92, cocoa production had again returned to its pre-Gilbert levels around 2500 metric tons, and remained at that level through 1994/95. Cocoa production increased about 2.8 times from 1989 to 1995, as it recovered from the effects of Hurricane Gilbert. However, there was basically no change in marketed cocoa production when one compares the three year average for 1985/86 to 1987/88 and for 1992/93 to 1994/95 (Table G1). Market production again fell more than 40 percent to 1400 metric tons in 1995/96. The cause of this fall seems to be the low price the Cocoa Board paid farmers, rather than some natural catastrophe.

International cocoa prices were rather weak by historical standards in 1991-3, breaking below the historical low of US$908 established in 1975 at some point each of those years. Future market prices increased substantially in late 1993 and 1994 and remained relatively stable in the US$1200-1400 range from mid-1994 through December 1996 (the time of this evaluation). (New York traders believe that cocoa prices will continue to trend upward because of production problems in both the Cote D'Ivoire and Brazil.) Given this pattern, the low price paid farmers in 1995/96 does not appear to have been caused by changes in the international cocoa price.

There has been a general trend for the quantity of dry cocoa produced per unit of wet cocoa to increase slightly from about 38-39 percent to 40-41 percent. Either the quality of the cocoa produced, or the transformation system, or both have improved a little over the 10 year period. Financial figures such as the average sale price of cocoa per ton, total revenue and total payments to farmers are up sharply over the last 6-8 years. However, this increase is dominated by depreciation in the value of the Jamaican dollar vis-a-vis foreign currencies in which cocoa is sold, and is not a very good indicator of changes in the cocoa industry.

During the late 1980s, the price paid to farmers for cocoa increased a little more rapidly than did the selling price (Table G2). The percent of the selling price returned to farmers in the form of payments increased from 46-47 percent in 1984-86, to 54-56 percent in 1988-93. However, in 1994-95, the portion of the average market price received by farmers has fallen to 40-42 percent. This relationship is a key indicator of the efficiency and effectiveness of a commodity marketing

system. The reasons for the sharp decline in the portion of the world price which the Cocoa Board passes on to farmers is not clear.

Equally important, increases in the price paid farmers for cocoa have not kept pace with the increased costs of cocoa production. Labor and fertilizer are perhaps the two most important costs in annual cocoa maintenance and production. The costs of labor and fertilizer have increased at least twice as fast as the rate at which cocoa payments to farmers have increased (Table G2). As the incentives for growing cocoa have decreased, there has been less interest in planting new cocoa and even in fertilizing and using labor to maintain and promote production on existing trees. In 1995/96, this cost/price relationship deteriorated to the point that farmers complained that harvest labor alone cost more than the cocoa was worth. A hired laborer costing J$300 (plus J$50-100 in food) per day typically picked only about 1 to 1.5 boxes (a box of wet cocoa weighs 25-26 kgs. or 56-58 lbs.) of cocoa per day. The Cocoa Board was paying J$250 per box split between two payments, such that the immediate payment was only J$150. Since the first payment was often not sufficient to pay the harvest labor, many farmers let the cocoa rot on the tree. It was because of this very negative pricing situation that marketed cocoa production fell over 40 percent to 1400 metric tons in 1995/96.

Production potential is estimated to be considerably higher than even the 2500 metric tons which has typically been marketed over the last 10 years. Such estimates are complicated by the fact that the Cocoa Board does not have data on either the number of farms producing cocoa or the acreage in cocoa production. The Cocoa Board has 26,000 individual cocoa suppliers, but this identifies each family member who might have delivered cocoa to the collection point as a separate individual. The Cocoa Board estimates that these 26,000 suppliers represent about 18,000 family farms, and that each farm has an average of 2.5 acres in a mixed cropping pattern including cocoa (although 70 percent of these farms have less than 2 acres of land). From these other estimates, the cocoa board reckons that there are 45,000 acres of cocoa. This compares to an estimate of 24,000 cocoa growers covering an area of approximately 33,000 acres at the time of the HAP project design. It is not clear whether these 45,000 acres are the total land area of farms producing cocoa, or an acre equivalent calculated at 400 cocoa trees per acre, or some combination of the two.

Since cocoa trees may live 60-80 years, there is a tendency to assume that everything planted remains in production. Another problem with the acreage estimates is that there is no assessment of the number of acres of cocoa which are actively managed, or at least maintained, and those which are inactive, temporarily abandoned or which have been cut down and replaced by other crops. Anecdotal information indicates that some farms are practically abandoned for periods of time when some family member migrates to Kingston or overseas. Often these farms are reactivated some years later when taken over by another family member. There is also a suspicion that significant acreage in some areas was never rehabilitated after Hurricane Gilbert, but no data was found on the subject.

1.1.2 Cocoa Production and Yields

The HAP logframe indicates that HAP was expected to double cocoa yields. The evaluation team can not objectively confirm such yield increases. Practically every farmer the evaluation team interviewed indicated that his/her cocoa yield had increased, typically that it had approximately doubled. But HAP did not monitor farm level impacts to provide an objective basis for such confirmation. Production information at the national and regional level does not confirm such yield increases. National data and related estimates would indicate that there has been some increase in acreage, but no increase in overall cocoa production or yields during the life of the project.

Given the national annual production figures of about 250,000 boxes of wet cocoa, the acreage estimate implies that the average cocoa yield is between 5 and 6 boxes per acre, the equivalent of 108 to 130 lbs of dry cocoa per acre. This is very low and about what was estimated as the average yield 10 years ago at the time of the HAP project design. Most sub-projects estimated that production was at 6-8 or even 12 boxes per acre at the start of the sub-project, and that with the use of techniques promoted by HAP, would double or triple from that level. Financial analysis in the project design estimated that yields would increase to and remain at 35 boxes per acre, which seems relatively close to Cocoa Board projects. Commercial farmers often are able to obtain 30 to 60 boxes per acre. But without acreage data or tree numbers, yield estimates which by definition are the ratio of production to area, have little or no basis.

Regional data on cocoa production also provide a very mixed picture. Over 90 percent of the cocoa produced in Jamaica is fermented at either the fermentary in Richmond or the fermentary in Morgan's Valley. Richmond traditionally handled the largest volume, averaging 145,000 boxes from 1982-1988. Morgan's Valley averaged 88,000 boxes during the same period. For 1991 to 1993, Richmond's average fell to 103,000 boxes while the average for Morgan's Valley increased to 124,000 boxes. While production in Clarendon (and neighboring parishes) serviced by Morgan's Valley has increased 40 percent, production in St. Mary (and neighboring parishes) serviced by Richmond has fallen 29 percent (Cocoa Board annual reports).

The evaluation team also investigated cocoa production data for individual coop groups providing cocoa to the Morgan's Valley and Richmond fermentaries. Data for coop groups served by the Morgan's Valley coop (Table G3) do indicate a near doubling of production from pre-Gilbert levels. However, coop groups which were not involved in HAP increased production at practically the same rate as those which did participate in HAP. The data on coop groups served by the Richmond fermentary (Table G4) is not as complete as that for Morgan's Valley. No pre-Gilbert data was provided. Typical increases per coop group from post-Gilbert lows were in the vicinity of 35 to 40 percent. Production in several of the larger coop groups declined significantly, causing the increase in total production from these post-Gilbert lows to remain a meager 16 percent. Since production decreased about 60 percent because of Gilbert, this

confirms the information that cocoa production in the Richmond area has not returned to pre-Gilbert levels.

The reasons for these mixed production and yield results is not entirely clear. It would appear that a primary reason for the stagnation in national cocoa production is the poor price paid to farmers in recent years relative to international cocoa prices, cost increases, and other opportunities such as coffee (where price increases have kept pace with cost increases). This hypothesis was largely confirmed by the 1995/96 campaign results in which cocoa was left to rot on the tree because the payment would not cover the cost of harvest. But it would also be important to understand the reasons why Clarendon was moving into cocoa production, and St. Mary was moving out of cocoa production, while receiving the same price for cocoa. One hypothesis relates to the competition for coffee, in and around the Blue Mountain area. It seems likely that the promotion of, and services provided for, coffee production have affected St. Mary more than Clarendon. Another important factor may be the dynamism of the Frankfield and related coops. The Richmond coop is reportedly much less dynamic. The evaluation team was not able to assess the services of the two coops, but it seems likely that Frankfield coop provides more and better quality cocoa production services than does Richmond. While HAP worked hard to help dynamic local coops and organizations, it may be that even more emphasis should have been placed on this type of institutional development to obtain impact and help insure sustainability.

HAP planted the equivalent of about 2400 acres of cocoa and resuscitated about another 5200 acres. Based on the estimate of 45,000 acres of cocoa, HAP would have planted about 5 percent and resuscitated about 10-11 percent of the total cocoa acreage.

1.2 Coffee

1.2.1 Coffee Production and Pricing

The story for coffee production tends to be much more positive than that for cocoa in recent years, predominantly due to the enormous marketing success of Jamaican coffee on the world market. Jamaican Blue Mountain coffee is recognized as one of, if not the most expensive coffee in the world. In Jamaica, it retails for US$15-20 a pound, and often sells for US$30 or more a pound outside of Jamaica. Other gourmet coffees do not demand a similar premium. The Jamaican coffee industry has capitalized on this *cache*, by establishing "Jamaican high mountain" coffee to also receive a substantial market premium. Coffee Board payments to farmers for 1995/96 ranged from $J900 per box for lowland coffee to $J1700 per box for Blue Mountain coffee (compared to $J250 for cocoa). Some of the private coffee processors are reported to pay higher prices than the Coffee Board.

Total coffee production has been trending higher over the last 15 years (Table G5). Comparing a two year period pre-Gilbert and a recent two year period indicates an increase of 30 percent from

1986/87 to 1994/96. This increase of 20-30 percent over 10 years characterizes the trend better than does the 8 percent increase generated by the three year period comparisons. The trend is confirmed by regression analysis which indicates an increase of 2.1 percent per year. This increase in total coffee production is due to the substantial increase in the production of Blue Mountain coffee. Blue Mountain coffee production more than doubled from the pre-Gilbert period to the present, increasing at a rate over 5 percent per year, while lowland coffee production decreased by 1/3 at a rate of over 3 percent per year. As a consequence of these trends, the portion classified as Blue Mountain coffee has increased from 12 percent in 1982 to 57 percent in 1996 while lowland production has decreased from 91 to 43 percent of the total (Table G5). Also the portion marketed by individual large farmers and deregulated groups other than the coffee board has increased significantly since the market was liberalized in 1985. In contrast, the production of lowland coffee cooperatives has declined by nearly 60 percent over the last 10 years (Table G8).[1]

Export volume and value have trended higher throughout this 15 year period. The value of exports in US dollars has risen substantially faster than the volume of exports since 1989. The value of the exports and the total value of coffee beans sold in Jamaican dollars has increased enormously, but this is due in large part to changes in currency rates (depreciation of the Jamaican dollar). The value of coffee beans sold locally in Jamaica (to produce powdered coffee) has increased 2.5 times (due to inflation) although the volume has not changed much from pre-Gilbert years.

The world coffee market trended downwards through the early 1990s. Through mid-1994 it held in a range between 50 and 90 US cents per lb. In mid-1994 the future market price spiked to over 200 cents per lb. Since then, prices have generally trended downwards to the 100-110 cents per lb. level where they remain as of December 1996. These world market fluctuations are only vaguely reflected by changes in the price paid to farmers each year.

The price paid farmers for Blue Mountain coffee is almost double the price paid for lowland coffee, J$1700 versus J$900. This reflects the high esteem in which Blue Mountain coffee is held in world gourmet markets, and the premium which that market is willing to pay. But that does not imply as is often indicated, that Jamaican lowland coffee is cheap or poor quality. The price (per lb. of dry coffee beans) paid lowland farmers is 2.5 times the value of standard coffee on the New York futures market (J$900 per box of cherry coffee which converts to 10 lbs. of dry coffee beans equals about $2.60 per lb.). Thus, even Jamaican lowland coffee is obviously treated as a

[1] Note that the two data series on coffee production in Table G5 and Table G8 do not correlate, although the Coffee Board representative said that boxes of cherry coffee are calculated from dry coffee bean weights using a standard conversion (The number of boxes equals 1/10 the weight of dry beans in pounds: A box weighs 60 lbs. and converts to 10 lbs. of dry coffee beans. The pound weight of dry beans is multiplied by 6 and divided by 60 [6/60 or 1/10] to obtain the number of boxes of cherry coffee.).

premium or gourmet coffee on the world market, even if to a lesser degree than Blue Mountain coffee.

Lowland coffee producers are unhappy about the large differential between their product and Blue Mountain coffee. Since production costs for lowland and Blue Mountain coffee are very similar, Blue Mountain coffee is nearly twice as profitable to grow as lowland coffee. Certainly there is a tremendous incentive for lowland farmers who can arrange it, to have a relative or friend in the Blue Mountains sell their coffee at the higher price. In recent years, the price paid for lowland coffee by the Coffee Board has actually increased more rapidly than that of Blue Mountain coffee. The price paid for lowland coffee has increased about 11.5 times since the 3 year pre-Gilbert period, while the price paid for Blue Mountain coffee has increased 7.5 times, albeit from a higher level (Table G7). (Note that cocoa payments have only increased 2.5 to 3.8 times.)

The portion of the average coffee price which the Coffee Board has returned to farmers as payments has made enormous swings. It hit a low of 38 percent in 1988/89 (the year of Hurricane Gilbert) and rose to a high of 126 percent in 1991/92. In recent years this ratio has stabilized somewhat in a range between 67 and 78 percent (Table G6). (Note that while industry costs differ, this compares to cocoa farmers receiving 40-42 percent of the average sale price of cocoa.) However, in contrast to cocoa, the increase in coffee prices approximately kept pace with increasing costs for labor and fertilizer. The price of lowland coffee increased slightly faster than costs. The price of Blue Mountain increased a little less than costs, but most analysts would concede that producing Blue Mountain coffee is still much more profitable than producing lowland coffee. Overall, coffee production remains profitable and the expansion of marketed production is not constrained by profitability as it is for cocoa.

1.2.2 Coffee Production and Yields

Coffee Board statistics indicate that 27,870 predominantly small farmers cultivated 36,655 acres (acre equivalents) in 1995 (compared to an estimate of 30,000 acres at project design). Small farmers (<2.5 acres) account for 88 percent of all coffee producers and 55 percent of the coffee acreage. Production by large farmers is growing rapidly, albeit from a small base. The Coffee Board does not maintain a data series on acreage or yields. Coffee Board personnel indicate that typical coffee yields among good small producers are in the range of 20-25 boxes per acre and that larger commercial farmers obtain yields of 50-80 boxes per acre. However the average yield based on Table 5 and Table 8 production figures for 1995 and 1996 would range from 12 to 18 boxes per acre. This data would indicate that coffee yields at the national level have changed little over the 10 year life of the project.

Production data by individual coop group was also investigated for the Guys Hill and NW St. Catherine areas. Total marketed production increased 40 percent for Guys Hill and 12 percent for NW St. Catherine (from a larger base) between 1989/90 and 1994/95. Production in 1995/96 was poor and fell to below 1989/90 levels in both areas (Table G8). At the level of individual

coop groups in Guys Hill and NW St. Catherine, non-project coop groups increased production more than those coop groups in which HAP was active between 1989/90 and 1994/95 (Table G9 and G10). This regional level data does not confirm the production and yield increases expected from HAP. In fact, it calls into question whether the large input subsidies provided by HAP had any effect on increasing production relative to those non-project areas where such subsidies were not available. If nothing else, these results reinforce the need to monitor project impact and present data which can directly indicate what effect the project is having.

The 60 percent decline in coffee produced by small farmer coops is rather startling. While it would be expected that their percentage of total production would decline as large individual farmers and private sector organizations increase production, the outright decline in the quantities of coffee marketed by small farmer coops was not anticipated. Coffee production tends to be volatile, but year to year changes for individual coops seems to be extreme. Lowland farmers are unhappy about the large difference in price between Blue Mountain and Lowland coffee, but the differential has been reduced a little in recent years. Lowland coffee prices have actually increased a little faster than Blue Mountain coffee prices. The evaluation team has no data on purchases in coop areas by individuals and approved groups, but the decline and volatility in sales lead to a hypothesis that private organizations may be buying a portion of the coffee previously marketed by coops. It may also be that a portion of the rapidly expanding Blue Mountain coffee production is in fact lowland coffee transported to the Blue Mountains for sale. Finally, given the strong emphasis on, and competition for, high margin Blue Mountain coffee, it may be that the Coffee Board has had fewer resources to devote to lowland coffee coops. Coffee coop services may have declined, or simply not have kept pace with the growing services, particularly cash payments, offered by private sector organizations.

The HAP logframe indicates that HAP was expected to increase coffee yields by 50 percent. Once again, practically every farmer interviewed by the evaluation team indicated that his/her yields had increased 50 to 200 percent. However, the project did not collect any farm level production data which might confirm these comments. The technical analysis in the HAP project document gives no indication of what yields might be expected. Financial analysis suggests that newly planted coffee acreage would produce 18 boxes in the 4th year, increasing to and remaining at 192 boxes per acre in the 9th through the 25th year. These financial projections appear completely out of line with reality. If we accept the Coffee Board generalization that good small farmers obtain yields of 20-25 boxes per acre, it would appear that the benefit stream from coffee was over-estimated by a factor of approximately 7.5 to 9.5 in the financial analysis. The CDIE study indicates that the internal rate of return (IRR) estimated for the project is sensitive to this benefit stream related to increased coffee yields.

HAP planted the equivalent of about 1900 acres of coffee and resuscitated another 1200. Based on the estimates of 36,650 acres of coffee in Jamaica, HAP planted about 5 percent of the total and rehabilitated another 3 percent.

Conclusions

The price of cocoa has not increased as rapidly as the costs of production or alternative crops such as coffee. In 1995/96 the cost of harvesting cocoa was about equal to the value of cocoa typically harvested by hired labor. This negative pricing relationship has constrained the marketed production of cocoa and farmers interest in growing cocoa or even maintaining cocoa trees already in production.

Increases in the price of coffee have approximately kept pace with increased in the cost of production. Increases in lowland coffee prices have exceeded costs of production and increases in the price of Blue Mountain coffee. While Jamaican lowland coffee may be considered to be lower quality than Blue Mountain coffee, it is still a premium coffee on the world market. Jamaican lowland coffee producers receive more than twice the New York future market price of coffee as payment from the Coffee Board.

There is no data (collected, aggregated or synthesized, and readily available to decision makers or evaluators) on cocoa or coffee production and productivity at the farm level that can be used to objectively assess impact. National production marketed is stagnate or declining for cocoa and coffee production marketed through farmer coops outside of the Blue Mountains has fallen substantially. Regional cocoa and coffee production data do not show any greater increases in HAP project areas than in areas not served by HAP. While individual HAP participants almost universally claim substantial yield increases, the evaluation team can not confirm increases in productivity attributable to HAP. The pricing problems and falling marketed production in sectors of interest greatly complicate any such measurement.

Lessons Learned

Projects need to monitor, collect, aggregate and present data concerning project impacts in order to demonstrate what those impacts have been.

2.0 SUBSIDIZED INPUTS

In most of the 32 HAP sub-projects, the inputs provided by HAP have been provided as an outright grant to participating farmers. However, even this was a major change from previous projects like the IRDP project, which provided cash grants to participants. Under HAP, cash was not provided and farmers were required to prepare fields and dig and manure the holes in which seedlings would be planted, before seedlings would be provided. While monitoring agencies (Data Bank, PAMCO) indicate that this principle was not always rigorously enforced, it does appear that enforcement was the rule rather than the exception. The logistics of obtaining and delivering large numbers of seedlings sometimes required that a sub-project staff make such exceptions. Farmers make an important contribution to the effort to increase production by providing all the labor, but make no out of pocket financial contribution.

In a few sub-projects, HAP benefits were extended to practically any farmer interested in participating. More often, criteria were established to ensure that the limited benefits available would go to farmers with a high probability of successfully increasing perennial tree crop production. Even HAP did not have sufficient financial resources to provide seedlings, fertilizer, tools, rat bait and/or pesticides to every farmer in the area. It is unlikely that local institutions or even the Jamaican Government can begin to match the resources provided by HAP.

The use of this grant approach makes it very difficult for the Jamaican Government to sustain or replicate the HAP activities. The GOJ does not have the financial resources to continue providing such grants to farmers, nor any expectation that it would continue the practice. RADA agents trained in production techniques for perennial tree crops will continue to provide extension services for tree crop production. Any input delivery services will have to be provided by the local commodity or community based coop. Financial support for the substantial investment required to plant perennial tree crops will have to be provided as loans from local coops, banks or credit unions. With a few exceptions, there will no longer be a one stop, coordinated program to deliver extension services, input deliver and financial support. The exceptions are those successful community based organizations such as the Frankfield and Long Road coops, which will be able to provide a one stop, coordinated perennial tree crop program to some portion of their constituents (depending on the financial resources available). Otherwise, sustaining the delivery of technologies promoted by HAP will require a project, backed by donor funding, such as in the case of the Morant/Yallahs project.

There are questions as to what extent or whether the input subsidies served to increase the production and productivity of beneficiaries sufficiently to offset the cost of those subsidies. Although the data is poor, it appears that average cocoa and coffee yields have not increased since the design of the project, nationally or consistently across the parishes where the HAP project was active. Since the cost/benefit analysis on which project benefits were based is very sensitive to yields, it seems unlikely that the benefits generated would justify the cost of the input subsidies. Furthermore, it appears that production increased no more in those areas served by the HAP project than in neighboring areas where the commodity boards provided services, but not the large input subsidies. If this is true, it would appear that the large input subsidies did not serve as a catalyst to increase participation and production as expected, and were in fact unnecessary. Free inputs were undoubtedly a boon to participants, and particularly to small (<2 acres) and poor farmers in those areas where selection criteria allowed them to participate.

One must expect that an extension effort coordinated with input delivery and financial support will be more effective in achieving adoption of the techniques promoted than one which does not. One must expect that an extension service which provides free inputs will be even more effective than one which requires payment for inputs. If perennial tree crops were highly profitable in the short run, they would be adopted even without extension service efforts, much as is the case for Blue Mountain coffee or marijuana production. Tree crop production, particularly when it involves planting, is long-term in nature and requires a significant investment. One can not expect

that even under the best of circumstances extension services will be as effective and adoption rates will be as high, in the absence of free inputs.

HAP has had a spread effect. The Data Bank's survey of phased-out projects indicates that 20 percent of non-participants have adopted some technique promoted by HAP, primarily pruning trees (resuscitation), increasing planting densities, and increased fertilizer use. Such techniques can make an important contribution to the incomes of small farms with existing perennial tree crops. However, relatively few small farmers have or can obtain the J$5000 to J$10,000 or more, necessary to buy 450 to 900 coffee seedlings for planting a half acre or an acre of coffee (a few may grow their own seedlings). Some farmers may have used loans to expand beyond the one acre limit imposed by most HAP sub-projects (or used HAP inputs and production to stretch loan resources and make it easier to meet loan repayments). However, one is not likely to find a large spread effect with regard to planting perennial tree crops or even using fertilizer, given the investment involved, if the non-participants do not have access to these subsidized inputs.[2]

2.1 Effect of HAP's Narrow Focus, Including Input Subsidies, on Community Participation

HAP's narrow focus on promoting perennial tree crops has had a negative effect on its community participation approach. An important aspect of community participation is achieving a situation in which communities make their own strategic decisions concerning priorities, constraints and opportunities, and develop a plan of action which takes all of these into account. It was difficult for HAP to facilitate this type of community participation, because it already had a predefined, and very narrow scope of activities which it would promote. While HAP had some flexibility and demonstrated this in changing the focus of the project from planting tree crops to resuscitating trees crops, it was not willing to attempt to meet the broader needs of hillside farmers. LMCs made tactical decisions about participant selection and the distribution of benefits, but the strategic decisions had already been made in the project design. For these reasons, a project with a narrow focus is not well suited to facilitate a community participation approach.

The input subsidies were used within the context of this narrow project focus. They attracted participation in the narrow range of tree crop related activities which the project promoted. These may not have been the farmers/communities top priorities, but being economically rational, they recognized that these activities should be profitable, given that the project was making most of the investment for them. Therefore, whether or not intended, the use of large grant subsidies had the effect of helping gain the acquiescence of local communities for the set of objectives pre-established by the project (design). It also focused the activities of the LMCs on those responsibilities which the project asked them to handle to help the project operate effectively.

[2] While the Data Bank did find non-participants using fertilizer, it did not establish how many of these used fertilizer (or resuscitated trees) before the start of the HAP activity in the area.

Since the strategic decisions had already been made with regard to HAP activities, one could argue that the channeling effect of accepting the subsidies actually hindered and was essentially contradictory with a community participation approach in which communities make these strategic decisions.

Conclusions

HAP experimented with reduced subsidies and enforced saving programs but the experimentation was not sufficient to determine how much of the cost of inputs farmers are willing to bear, or the subsidy necessary to stimulate wide spread participation in the proposed activity. HAP had an opportunity to increase knowledge related to the subsidy issue by requesting that latter sub-projects test co-funding or enforced savings schemes similar to those used successfully by the Frankfield or Long Road sub-projects. Such testing would have contributed to the long-term sustainability of efforts to promote perennial tree crops.

One is not likely to find a large spread effect with regard to planting perennial tree crops or even using fertilizer, given the investment involved, if the non-participants do not have access to the subsidized inputs which have been a major attraction for participants.

If the large input subsidies provided by HAP produced production increases no greater than in those non-HAP activities which did not provide such subsidies, it would appear that this financial largesse did little to improve adoption rates and productivity. It would also appear that yields at the national level have not increased little, if any, during the life of the project. This reinforces the impression that economic projections in the project design were not realistic and that large input subsidies can not be justified economically on the basis of the benefits produced (cost/benefit analysis).

The use of large grant subsidies for a very limited range of activities buys community acquiescence to objectives established for them by others. It inhibits, and essentially contradicts, the use of a process in which communities participate in decisions about development priorities, constraints and opportunities.

Lessons Learned

It appears doubtful that the large input subsidies were either economically justified or necessary to attract the participation of hillside farmers. Many Jamaican farmers are willing to participate in programs to invest in and increase the production of perennial tree crops even if the program requires a financial contribution from the participants.

Testing alternative subsidy/co-funding arrangements can make an important contribution to the sustainability of natural resource management programs.

The use of large grant subsidies for a very limited range of activities may be incompatible with the promotion of community participation in decisions about what activities are priorities for their development.

3.0 MARKETING AND INPUT DELIVERY

3.1 Marketing

The project design included the intention of beginning project activities with a focus of traditional export crops (cocoa and coffee), but diversifying this orientation to include diverse fruit tree species. The flexibility to diversify in this manner, or to reorient the project focus from planting new trees to rehabilitating existing trees is one of the key differences between HAP and many previous projects. Cutting back tall trees which could no longer be harvested, to produce more and better quality fruit that could be harvest more easily, was one of the major innovations which allowed HAP to meet some of farmers food crop needs. However it may be that the crisis in cocoa and coffee production caused by Hurricane Gilbert actually delayed a reorientation towards diversification. It is clear that the first 18 (phased-out) sub-projects did relatively little with diversified fruit trees and the on-going 14 projects are much more oriented in that direction (see Tables 2 and 3 in Annex H).

Cocoa and coffee had the advantage that a system already existed to market the produce, provide some extension support, and in some areas, local coops would help deliver the inputs necessary for production. As stated in the PP:

> "Given the chaotic market situations faced by small hillside farmers it is necessary to focus on perennial crops with assured markets. The commodity boards provide a guaranteed market for the production of coffee, cocoa, coconut, and pimento. In cases where no commodity board exists, non-formal contractual relationships have developed between small farmers and agro-processors. This has been the case with mango, ackee, citrus, guava, papaya and to a lessor extent other tree crops. In the case of these crops (except citrus)[3], the Project should facilitate relationships between small farmers and agro-processors to resolve critical problems that limit production and productivity."

While HAP and its sub-projects have promoted relationships between farmers and agro-processors and exporters, the demand for produce has been neither large nor consistent. It was apparently assumed that more processors would locate in rural areas and become the focus of sub-project activities (like the N. Clarendon Processing Co. sub-project), but this has not happened. Most existing processors, exporters markets and other market outlets (for example,

[3] Citrus is one of the most profitable alternatives among the tree crops. The inability to work with citrus has limited the diversification strategy and HAP's ability to meet farmers immediate needs.

supermarkets) are located in urban areas and farmers in many sub-projects distant from important urban areas had difficulty transporting produce to market. Several sub-projects had or developed cooperative marketing arrangements to transport produce to urban markets or sell produce through informal contracts to supermarkets and agro-processors. The sub-project arranged to lease or rent a vehicle, and participants shared the cost of the service. However, these marketing arrangements were the exception rather than the rule. Not all sub-projects needed such arrangements. Many able-bodied farmers in the Mammee River and Manchester sub-projects, overlooking urban areas, could market their own produce with relative ease. Older farmers for whom travel was difficult had little choice but to sell to higglers (which probably did not improve the prices they received). Cooperative marketing consisted of an arrangement with a trucker to take produce or farmers and produce to specific markets on specific days, or to transport goods and a buyer to supermarkets, agro-processors, etc. that bought in larger volume. Elderly producers found that the cooperative marketing was wonderful because they did not have to take the produce to market.

As in many countries, farmers tend to see higglers (merchants) as despoilers, rather than as a solution to the marketing problem. Higglers are frequently women from the community who purchase produce locally and pay to transport the produce and themselves to important markets. In interviews, farmers almost universally complained that the prices offered by higglers were insufficient and provided no incentive to production. They also complained that higglers would return at the end of the day and tell farmers that the price was poor, or even that they had discarded the produce because there was no demand and they were unwilling to pay freight to return worthless produce it to the farm. The higglers margins are reportedly very low and most higglers are women from poor families trying to supplement their farm income. The limited volume which most can afford is barely enough to pay the charges to transport the produce and themselves to and from market.

The cooperative marketing arrangements developed by the IICA and Long Road sub-projects provide a model which will be duplicated by post-HAP projects. It would seem that HAP missed an opportunity to promote diversification and improve success when it did not insist that more sub-projects develop similar cooperative marketing arrangements. While this seems like an obvious conclusion, it probably was not for the commodity boards and even RADA, who served as implementing agencies for many of the sub-projects. Commodity boards in particular, probably had difficulty with the idea of moving the focus off their particular commodity.

If HAP had been able to promote more marketing arrangements and agro-processing in rural areas it would have helped producers throughout the area, but particularly women. Since women are typically responsible for marketing and post-harvest processing of farm produce, they would have been involved in and benefitted from whatever solutions could be found. If the North Clarendon Processing Co. is any example, women would probably have received a large portion of the agro-processing jobs. While many sub-projects should have been able to use the IICA or Long Road model for promoting marketing of diverse fruit crops, it is not evident that HAP alone

had much capacity to develop agro-processing. The RADA Social Services/Home Economics program apparently has experience in cottage industry processing of preserves. Perhaps they could have been involved. or their program used as a model, to develop cottage industry processing of fruit products.

3.2 Input Supply

Input supply is affected by many of the same problems which constrain marketing. There are few outlets in rural areas, transportation is not always available and it is expensive for any one small farmer to transport a small volume of freight. In some cases the cost of traveling to and from a source or market may be more than the value of the product being sold or purchased. Even when the input is available in a local town or village, some farmers may find it difficult to transport the item back to the farm.

HAP has supported tool pools and farm supply stores in several contexts. Many of the sub-projects established a tool pool, supply store, or both. In a few cases they were run directly by the LMC, but more often by the local commodity coop. HAP also had a policy of purchasing inputs locally, even when the local supply store was sponsored by the sub-project. Certainly the substantial volume of supplies purchased by the project was a benefit to the establishment of a dynamic local supply store, whether cooperative or private. In at least one case, the PC Bank provided a loan to allow the project supply store to continue functioning under the Bank's auspices, after the sub-project phase-out. However, some project supply stores simply closed when the project ended.

Tool pools were intended to provide tools which could be rented rather than purchased, particularly to help small resource poor farmers. While this is a very useful concept, it is difficult to implement. Over time, tools have a tendency to disappear and no longer be available for rental. There is little factual information about what happened to the tools. In several instances, there are reports that community leaders and/or large farmers borrowed the tools and never returned them, but that no one else in the community had sufficient status to accuse them or tell them to return the items. Given these problems, tool pools have perhaps been less successful in meeting the input needs of poor farmers than have the supply stores.

Transportation of inputs was a problems in many cases. The IICA and Long Road projects were sometimes able to use the truck they leased for marketing, to bring supplies back to the community as a backload on their marketing trips. This helped keep down cost of the supplies in the supply store. Frankfield coop addressed the problem of transporting the inputs to the farm gate. There was no provision in the project to cover this additional expense, so Frankfield, with the approval of participants, charged an additional fee for farmgate delivery. Farmers were willing to pay for the service.

It would have been interesting if HAP had strongly encouraged (if not required) some of the newer sub-projects to adapt the marketing strategies used successfully by Long Road and IICA, and input supply strategies used successfully by Frankfield. Frankfield and Long Road, in particular, are considered to be among the most successful projects, in part because they found solutions to these marketing and input supply (and enforced savings) constraints. Many of the other sub-projects might have been more successful if they had adapted these strategies. Certainly, HAP would have provided a broader experience upon which to judge if these strategies can provide a solution to such constraints in future projects. Future projects will use these HAP models, but will have to do their own experimentation.

3.3 Enforced Savings

The Frankfield and Long Road coops had another area in which they piloted experimentation related to the input subsidies, enforced savings. HAP has encouraged farmers to save ½ of the increase in income generated from the increased production due to HAP interventions, particularly the input subsidies. But for the most part, this sage advice seems to have fallen on deaf ears. Long Road has taken the principle a step further. It has required that participants deposit in a credit union account, 10 percent of the value of seedlings and 25 percent of the value of fertilizers and other inputs received free from the project. The distribution of future benefits will be conditional on participants having made these deposits. This strategy has had some success and some millions of Jamaican dollars have been deposited. However, most recipients are still far behind on meeting their deposit obligation.

RMCEP (Frankfield) took a different approach. Although loan programs were supposedly held in very low regard, the Frankfield coop structured the distribution of HAP benefits as a loan with a twist. If farmers followedFebruary 10, 1997 the projects technical advice and adhered to the agreements, 50 percent of the loan would be forgiven. The other 50 percent would be placed in an account at the coop. Farmers could use these funds for the purchase of supplies, and in the meantime it would be used to establish a revolving loan fund to benefit farmers who had not been able to receive HAP benefits, fund supply store purchases, etc. At Frankfield, 98 percent of the participants met the conditions and participated in this enforced savings program. Frankfield needed capital to develop as an institution and to spread to HAP benefits to coop members who were not HAP participants. The enforced savings scheme made this possible.

Once again, it would have been very interesting to see these strategies tried in other sub-projects. Most of the local commodity coops need capital to develop and expand their services, much as Frankfield has been able to do. Farmers need local financial institutions like the credit union at Long Road. The sub-projects which successfully implemented these strategies would have been more successful, and the experimentation would have provided more knowledge on how to develop rural saving in Jamaica. But even this limited experience will provide models to be tested by future projects.

Conclusions

The project's promotion of diverse fruit tree crops was at times constrained by the lack of marketing opportunities at prices which provide a production incentive, in areas which were distant from urban markets. While the project design planned this diversification, it assumed that merchants (higglers) would provide marketing services and an incentive price. That assumption has not always proved valid. Several sub-projects successfully organized group marketing arrangements, hiring the services of a local trucker, and requiring that participants share the cost.

The project's promotion of perennial tree crops was also constrained by the lack of transportation services (farmgate delivery) and the high cost to individuals of transporting small quantities of inputs. Several sub-projects delivered inputs to the farmgate or local drop-off points. At least one sub-project charged participants an additional fee for this service.

The sub-projects which handled these marketing and input delivery challenges effectively are perceived to be the more successful among the sub-projects.

Lessons Learned

Farmers are willing to contribute financially to have access to marketing and input delivery services. Production activities are not likely to be successful unless those services are assured.

Table G1. Cocoa: Production and pricing **Jamaica/cocoa2a.wb2**

	Year	Wet Cocoa (boxes)	Wet Cocoa (Kg)	Kg/ box (Kg)	Dry Cocoa (m. tons)	Recovered per box (kg)	Recovered (%)	Dry Cocoa Sold (m. tons)	Selling Price (J$/ m.ton)	Total Revenue (J$)	Total Payments to Farmers (J$)
	84/85	261,399	6,865,142	26.26	2,646		0.39		11,788		
	85/86	239,353	6,284,938	26.26	2,414		0.38		14,154		
	86/87	259,682	6,822,620	26.27	2,602		0.38		13,384		
	87/88	239,210	6,281,805	26.26	2,428		0.39		13,315		
	88/89	87,382	2,291,056	26.22	913	10.47	0.40	1,183	10,376	11,344,439	4,109,147
	89/90	199,958	5,253,490	26.27	2,126	10.65	0.40	2,158	11,505	25,255,718	13,483,962
	90/91	166,246	4,280,706	25.75	1,765	10.61	0.41	1,694	15,909	26,958,438	12,612,806
	91/92	248,356	6,194,222	24.94	2,521	10.15	0.41	2,247	32,393	72,804,217	44,672,566
	92/93	252,159	6,296,908	24.97	2,548	10.10	0.40	2,238	27,549	61,649,515	37,801,727
	93/94	248,516	6,169,472	24.83	2,575	10.36	0.42	2,802	39,819	112,530,188	40,955,066
	94/95	247,436	6,185,626	25.00	2,538	10.25	0.41	2,579	48,191	124,294,163	51,786,180
	95/96				1,400						
% change 1989 to 95		2.83	2.70		2.78			2.18	4.64	10.96	12.60
% change in averages 1986-88 to 1993-95		1.01	0.96		1.03				2.83		

Source: Cocoa Industry Board

Table G2. Cocoa: Farmer payments and cost of production Jamaica\cocoa2b.wb2

Year	Pay ment Wet Cocoa (J$/box)	Selling Price/ Box Wet Cocoa (J$/box)	Pay ment Wet Cocoa (J$/kg)	Selling Price/ Kg Wet Cocoa (J$/kg)	Payment/ Selling Price Box Wet Cocoa (%)	Payment/ Selling Price Kg Wet Cocoa (%)	Total Payment/ Toal Revenue (%)	Daily wage of rural labor (J$)	Fertilizer Costs (NPK) ($J/cwt)	Fertilizer Costs (SO4) ($J/cwt)
84/85	55.56	119.31	2.12	4.54	0.47	0.47			42	42
85/86	65.56	142.75	2.50	5.44	0.46	0.46			51	50
86/87	70.56	134.11	2.69	5.10	0.53	0.53			44	42
87/88	75.56	135.15	2.88	5.15	0.56	0.56			45	35
88/89	65.56	108.41	2.50	4.13	0.60	0.60	0.36	35	50	45
89/90	67.56	122.32	2.57	4.66	0.55	0.55	0.53	40	37	37
90/91	77.06	168.90	2.99	6.56	0.46	0.46	0.47	80	60	84
91/92	180.06	328.81	7.22	13.18	0.55	0.55	0.61	80	251	
92/93	150.06	278.38	6.01	11.15	0.54	0.54	0.61	90	250	149
93/94	165.06	412.58	6.65	16.62	0.40	0.40	0.36	150	250	142
94/95	210.06	494.30	8.40	19.77	0.43	0.43	0.42	200	392	383
95/96	250.06							300	595	663
96/97	310.06							300	607	663
% change 1989 to 95	3.20	4.56	3.36	4.78				5.71	7.84	8.51
% change 1989 to 96	3.81							8.57		
% change in averages 1986-88 to 1993-95	2.48	2.88	2.61	3.03					6.37	5.31

Source: Cocoa and Coffee Industry Boards

Economic Planning and Policy Division/MOAM

Table G3. Cocoa production trends in Clarendon

jamaica\ccgroup1.wb2

Coop Groups	Boxes of Cocoa Produced By Individual Coop Groups									Change 86/88 to 93/95 (%)	Change 89/90 to 94/95 (%)	Change 92/93 to 94/95 (%)
	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95			
RMCEP & JAS Coop Groups												
Beckford Kraal	2294	2409	1276	3524	3052	3691	4250	4148	3955	1.72	1.61	1.05
Blackwoods	664	643	300	1310	1204	1910	1748	1829	1808	2.78	2.88	1.46
Braehead	1440	1173	470	1620	1738	2267	2768	2672	2472	1.97	1.57	1.40
Collington	587	562	233	897	777	1161	1083	1093	920	1.75	1.98	1.29
Crooked River	3830	3756	1802	5930	4708	6558	8027	7323	5837	1.73	1.71	1.11
Elgin	2895	2819	2331	5145	4372	5037	4934	4199	4842	1.58	1.74	0.98
John Austin	1839	2209	1973	3940	2959	3748	4567	3769	4106	1.95	2.04	0.95
Main Ridge	950	639	524	1901	1620	1878	2140	1794	2382	2.63	1.98	0.99
Mears	614	676	285	1014	694	978	1022	1024	942	1.53	1.59	0.96
Orange Hill	861	882	284	1822	1556	1806	1688	1857	1772	2.08	2.10	0.99
Park Hall	880	1039	396	1869	1354	2094	2301	2252	2041	2.24	2.38	1.12
Smithville	2146	1923	1225	3116	3252	4379	4475	3874	4387	2.03	2.04	1.41
Trout Hall Pass	1653	2042	1393	4069	2699	4044	3342	3236	3351	1.78	2.45	0.99
Windsor	2283	1789	1375	2998	2653	3503	3377	3080	3306	1.57	1.53	1.17
Desire	289	350	51	359	296	540.7	642	639	568	1.89	1.87	1.51
Frankfield	3707	4592	2192	6814	5541	8521	8980	8759	7489	1.96	2.30	1.25
James Hill	427	485	47	437	282	606	638	575	579	1.26	1.42	1.39
Nine Turns	326	288	122	383	432	596	618	852	733	2.58	1.83	1.56
Average Change										1.92	1.92	1.21
Expansion Phase II 1991-92												
Red Hills	1967	1743	566	1651	1502	2706	3410	3844	3163	1.89	1.38	1.64
Victoria	25	40		7	51	50	80	58	36	1.45	1.95	6.97
Coffee Piece	2190	1905	820	2403	2064	2984	3020	3446	3204	1.62	1.36	1.24
Grantham	1631	1794	1103	2406	2142	3790	3703	3876	3678	2.20	2.32	1.58
Leicesterfield	810	832	260	934	858	1183	1045	1304	1142	1.49	1.46	1.27
Peckham	1097	1354	789	1959	1840	2433	2676	2360	2595	2.02	2.22	1.24
Sanguinetti	948	927	455	1039	812	1353	1152	1410	1354	1.47	1.43	1.30
Average Change										1.78	1.78	2.32

Coop Groups	Boxes of Cocoa Produced By Individual Coop Groups									Change 86/88 to 93/95 (%)	Change 89/90 to 94/95 (%)	Change 92/93 to 94/95 (%)
	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95			
Non-Project Coop Groups												
Dry Harbour	888	960	569	1212	1168	1423	1644	1544	1775	1.80	1.60	1.17
Effort	1605	1589	589	2196	1931	3095	2765	2738	2860	1.75	1.93	1.41
Thompson Town	110	117	27	115	141	263	285	334	354	3.03	2.38	2.29
Wakefield	786	603	439	866	1054	1496	1547	1480	1605	2.22	1.90	1.73
Allston	221	192	78	316	207	270	238	248	188	1.05	1.22	0.86
Bailieston	88	81	8	101	70	116	104	112	93	1.21	1.33	1.15
Burnt Cedar	114	90	8	116	138	246	194	285	232	2.53	2.16	2.12
Fairburn	72	79	1	109	76	190	170	203	130	2.20	2.63	1.74
John's Hall	1107	1204	357	1562	1283	1940	2105	2195	1993	1.81	1.75	1.24
Moravia	31	24		35	34	49	39	53	31	1.53	1.59	1.40
Morgan's Forest	113	107	10	174	157	220	218	229	169	1.81	1.95	1.27
Mt. Moriah	69	68		109	107	171	139	166	126	2.13	2.49	1.57
Top Alston	25	17		31	31	65	32	53	32	2.03	2.60	2.10
Tweedside	577	653	302	1022	862	1303	1284	1141	1182	1.89	2.26	1.28
Wildcane	90	73	2	115	107	169	102	129	102	1.42	1.88	1.47
Average Change										1.90	1.98	1.52
Total Production	42249	42728	22664	65625	55827	78835	82552	80185	77537	1.86	1.87	1.20

Source: Cocoa Industry Board

Table G4. Cocoa production trends in St. Mary

Jamaica\ccgroup2.wb2

Producer Group	Boxes of Cocoa Produced By Individual Coop Groups							Change 89/90 to 94/95 (%)	Change 92/93 to 94/95 (%)
	89/90	90/91	91/92	92/93	93/94	94/95	95/96		
HAP Project Coop Groups									
Brainerd	1800	1691	2367	2814	2073	2566	1374	1.43	0.91
Deeside	307	409	606	638	496	685	310	2.23	1.07
Facey	1606	1273	2125	2590	2104	2459	1303	1.53	0.95
Flint River	1439	1114	1708	1413	1674	1571	851	1.09	1.11
Lewisburgh	1966	1573	2278	2500	2325	2106	1322	1.07	0.84
Lucky Hill	193		90	149	186	188	78	0.97	1.26
Average Change								1.39	1.02
Project Zone Expansion 1993									
Albion Mountain	460		342	401	226	174	291	0.38	0.43
Belfield	4475		4422	4367	4829	4489	2686	1.00	1.03
Belfield-Line	479		421	464	894	791	315	1.65	1.70
Average Change								1.01	1.06

Source: Cocoa Industry Board

Table G4. Cocoa production trends in St. Mary (cont)

Producer Group	Boxes of Cocoa Produced By Individual Coop Groups							Change 89/90 to 94/95 (%)	Change 92/93 to 94/95 (%)
	89/90	90/91	91/92	92/93	93/94	94/95	95/96		
Non-Project Coop Groups									
Bailey's Vale	111		143	100	76	84	133	0.76	0.84
Barracks River	2430		3121	2573	3402	3027	1520	1.25	1.18
Carron Hall	482		597	654	702	804	209	1.67	1.23
Clarke Castle	237		240	260	355	312	146	1.32	1.20
Cronmel	1815		2002	2187	2611	2504	1072	1.38	1.14
Comfort Valley	496		539	527	541	451	171	0.91	0.86
Elliot	1351		1570	1403	1598	1360	757	1.01	0.97
Esher	2226		3153	2619	2568	1473	1590	0.66	0.56
Free Hill	175		228	296	162	73	27	0.42	0.25
Hampstead	194		247	253	226	221	102	1.14	0.87
Heywood Hall	404		541	514	476	300	300	0.74	0.58
Highgate	3037		4796	4557	5544	4516	2405	1.49	0.99
Islington	3448		3270	2714	2978	1176	1930	0.34	0.43
Jackson	110		98	117	136	169	56	1.53	1.45
Jeffery Town	22		8	26	46	40	5	1.84	1.58
Jobs Hill	500		800	892	755	1106	538	2.21	1.24
Marlborough	1353		1595	1568	2020	1532	1140	1.13	0.98
Mt. Angus	395		242	324	297	407	144	1.03	1.26
Mt. Regale	756		840	1000	1095	1284	647	1.70	1.28
Mt. Vernon	1537		1617	1718	1437	1802	1100	1.17	1.05
Nutfield	1262		1328	812	957	536	602	0.42	0.66
Preston	499		411	564	732	856	322	1.71	1.52
Richmond Road	1293		1480	1971	1828	1753	753	1.36	0.89
Rock River	394		718	715	862	1148	375	2.92	1.61
Rose Bank	84		43	81	120	118	37	1.41	1.46
Sandside	352		411	438	377	341	446	0.97	0.78
Wallingford	176		239	303	297	394	148	2.23	1.30
White Hall	152		174	226	314	277	142	1.82	1.23
Woodpark	473		496	635	725	765	245	1.62	1.21
Woodside	528		563	648	713	679	419	1.29	1.05
Hartlands	355		696	820	921	1074	362	3.03	1.31
Average Change								1.37	1.06
Total Production	39372		46565	46848	49678	45612	26374	1.16	0.97

Table G5. Coffee production and pricing

Jamaica\coffee1.wb2

	Year	Coffee Production Dry Coffee Beans Blue Mountain (lbs)	Lowland (lbs)	Total (lbs)	Blue Mtn/ Total (%)	Low land/ Total (%)	Export Sales Coffee Beans Volume (lbs)	Value (US$)	Value (J$)	Local Sales Coffee Beans Volume (lbs)	Value (J$)	Total Coffee Bean Sales (J$)
	81/82	404,165	2,934,728	3,238,893	0.12	0.91	2,046,208	6,503,556	15,472,032	1,061,676	3,654,196	19,126,228
	82/83	784,760	2,807,350	3,592,110	0.22	0.78	1,772,364	4,710,090	11,208,229	1,561,824	5,661,158	16,869,387
	83/84	527,740	3,134,330	3,662,070	0.14	0.86	2,455,200	6,214,104	26,014,830	1,327,656	6,580,365	32,595,195
	84/85	562,180	1,986,660	2,548,840	0.22	0.78	1,782,000	6,208,148	31,758,064	1,163,052	9,370,836	41,128,900
	85/86	878,000	2,635,880	3,513,880	0.25	0.75	2,172,060	7,697,258	42,963,208	1,054,416	10,929,012	53,892,220
	86/87	1,190,000	2,477,200	3,667,200	0.32	0.68	2,059,200	7,095,333	37,642,190	1,378,344	15,121,319	52,763,509
	87/88	1,263,730	3,225,880	4,489,610	0.28	0.72	2,970,000	9,245,801	49,468,709	1,204,632	16,071,573	65,540,282
	88/89	615,415	1,174,630	1,790,045	0.34	0.66	1,618,980	7,759,627	42,919,649	1,069,860	14,702,232	57,621,881
	89/90	698,490	1,900,915	2,599,405	0.27	0.73	1,950,960	8,724,012	56,179,841	946,440	14,251,564	70,431,405
	90/91	1,500,000	1,869,130	3,369,130	0.45	0.55	1,802,064	10,453,486	69,853,645	775,236	14,875,974	84,729,619
	91/92	2,050,000	2,910,000	4,960,000	0.41	0.59	2,467,740	13,985,009	237,305,674	738,540	29,325,145	266,630,819
	92/93	2,200,000	2,130,280	4,330,280	0.51	0.49	2,320,200	16,604,874	368,312,663	1,546,800	31,315,664	399,628,327
	93/94	2,050,000	1,295,052	3,345,052	0.61	0.39	2,520,320	16,418,460	498,161,525	662,323	25,031,820	523,193,345
	94/95	2,439,955	2,392,758	4,832,713	0.50	0.50	3,441,592	26,347,398	887,731,429	1,374,655	51,122,844	938,854,273
	95/96	2,572,250	1,907,211	4,479,461	0.57	0.43	3,052,535	24,296,347	837,157,594	1,316,521	29,961,986	867,119,580
% change1989-96		4.18	1.62	2.50			1.89	3.13	19.51	1.23	2.04	15.05
% change in average 1986-88 vs. 1994-96		2.12	0.67	1.08			1.25	2.79	17.09	0.92	2.52	13.53
% change in average 1986-87 vs. 1995-96				1.30								

Source: Coffee Industry Board

Table G6. Coffee: Payments to farmers Jamaica\coffee1b.wb2

	Year	Payment to Farmers J$ per box		Payment to Farmers J$ per lb of Beans			Total Payments to Farmers (J$)	Total Pay ments/ Total Sales (%)	Sales Price J$ per lb of beans			Blue Mtn Payments/lb as a % of		Lowland Payments/lb as a % of	
		Blue Mtn	Low land	Blue Mtn	Low land	Weight Aver age			Export (J$/lb)	Local (J$/lb)	Ave. (J$/lb)	Export price	Ave. price	Export price	Ave. price
	81/82	80	21	8.00	2.10	2.90	9,396,249	0.49	7.56	3.44	5.91	1.06	1.35	0.28	0.36
	82/83	85	22	8.50	2.20	3.58	12,846,630	0.76	6.32	3.62	4.70	1.34	1.81	0.35	0.47
	83/84	140	32	14.00	3.20	4.76	17,418,216	0.53	10.60	4.96	8.90	1.32	1.57	0.30	0.36
	84/85	246	43	24.60	4.30	8.78	22,372,266	0.54	17.82	8.06	16.14	1.38	1.52	0.24	0.27
	85/86	222	63	22.20	6.30	10.27	36,097,644	0.67	19.78	10.36	15.34	1.12	1.45	0.32	0.41
	86/87	210	70	21.00	7.00	11.54	42,330,400	0.80	18.28	10.97	14.39	1.15	1.46	0.38	0.49
	87/88	208	80	20.80	8.00	11.60	52,092,624	0.79	16.66	13.34	14.60	1.25	1.42	0.48	0.55
	88/89	208	78	20.80	7.80	12.27	21,962,746	0.38	26.51	13.74	32.19	0.78	0.65	0.29	0.24
	89/90	255	96	25.50	9.60	13.87	36,060,279	0.51	28.80	15.06	27.10	0.89	0.94	0.33	0.35
	90/91	472	146	47.20	14.60	29.11	98,089,298	1.16	38.76	19.19	25.15	1.22	1.88	0.38	0.58
	91/92	1006	450	100.60	45.00	67.98	337,180,000	1.26	96.16	39.71	53.76	1.05	1.87	0.47	0.84
	92/93	1009	428	100.90	42.80	72.32	313,155,984	0.78	158.74	20.25	92.29	0.64	1.09	0.27	0.46
	93/94	1500	639	150.00	63.90	116.67	390,253,823	0.75	197.66	37.79	156.41	0.76	0.96	0.32	0.41
	94/95	1700	900	170.00	90.00	130.39	630,140,570	0.67	257.94	37.19	194.27	0.66	0.88	0.35	0.46
	95/96	1700	900	170.00	90.00	135.94	608,931,490	0.70	274.25	22.76	193.58	0.62	0.88	0.33	0.46
% change 89-96		8.17	11.54	8.17	11.54	11.08	27.73		10.35	1.66	6.01	0.79	1.36	1.12	1.92
% change in aver ges 1986-88 vs. 94-96		7.66	11.45	7.66	11.45	11.46	12.48		13.34	2.82	12.28	0.58	0.63	0.85	0.92

Source: Coffee Industry Board

Table G7. Coffee payments and cost of production

jamaica\coffee3.wb2

	Year	Payment to Farmers J$ per box Blue Mtn.	Low land	Cost of Production per acre 3 years $J/acre	Fertilizer Costs (NPK) ($J/cwt)	Fertilizer Costs (SO4) ($J/cwt)	Daily wage of rural labor $J
	82/83	85	22			19	
	83/84	140	32		22	20	
	84/85	246	43	7472	42	42	
	85/86	222	63		51	50	
	86/87	210	70		44	42	
	87/88	208	80	14242	45	35	35
	88/89	208	78		50	45	40
	89/90	255	96		37	37	80
	90/91	472	146		60	84	80
	91/92	1006	450		251		90
	92/93	1009	428	46,549	250	149	150
	93/94	1500	639	74,688	250	142	200
	94/95	1700	900	94,969	392	383	300
	95/96	1700	900	117,721	595	663	300
	96/97			139,341	607	663	
% change 1989 to 96		8.17	11.54	8.27	11.90	14.73	7.50
% change in averages 1986-88 to 1994-96		7.66	11.45		8.84	9.35	

Source: Coffee Industry Board

Economic Planning and Policy Division/MOAM

Table G8. National coffee production details, 1985/86 to 1995/96

Jamaica\coffee4.wb2

Boxes of cherry coffee

	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96
LOWLAND											
Cooperatives											
Catadupa	10,005	3,364	9,692	4,190	3,762	5,042	12,528	5,571	5,455	6,158	7,217
Central St. Catherine	17,536	16,500	21,674	4,515	8,797	9,090	16,469	10,613	2,545	10,806	7,625
Central St. Mary	4,447	9,057	3,709	1,493	2,061	1,742	2,916	2,143	191	1,012	282
Dariston	2,159	501	2,100	269	949	1,366	4,838	3,502	5,502	6,497	7,532
East St. Ann	3,094	6,113	4,746	2,147	2,431	943	5,914	2,902	1,213	4,517	1,417
Frankfield	46,605	34,172	53,837	8,557	43,005	11,099	48,868	23,148	8,280	30,835	10,252
Guys Hill	8,996	15,487	9,432	2,849	3,611	2,536	7,567	5,214	1,250	5,041	2,791
North Manchester	15,137	14,348	21,657	7,236	13,016	13,094	18,041	11,014	7,409	10,968	9,722
N/E Clarendon	28,080	23,657	24,822	7,351	13,320	16,311	19,171	21,149	4,049	16,858	8,327
N/W St. Catherine	25,555	34,403	32,003	10,019	12,958	13,752	22,965	20,018	1,304	14,528	10,587
St. Elizabeth	15,842	7,233	13,132	3,490	9,532	7,174	11,222	4,448	6,072	5,190	8,394
South Clarendon	6,581	7,762	6,642	5,145	5,208	5,030	3,573	5,233	2,992	5,525	2,857
South Manchester	25,422	21,495	26,149	18,863	16,703	23,868	19,280	21,658	9,519	18,494	8,770
Trelawny	4,314	2,486	6,059	624	1,854	2,760	4,655	2,016	2,527	4,063	3,909
Western St. Andrew	1,883	1,510	2,434	184	215	684	1,423	603	174	505	663
Western St. Ann	12,560	12,507	23,767	4,386	14,751	5,961	25,491	9,648	4,684	8,803	6,079
Coop Sub-Total	228,216	210,595	261,855	81,318	152,173	120,452	224,921	148,880	63,166	149,800	96,424
Non-Coop Sources											
CIDCo	23,177	19,594	27,058	12,172	17,396	20,411	19,194	16,620	18,639	24,824	24,185
Individuals	12,195	15,221	17,544	12,416	4,183	6,937	14,688	11,483	20,568	46,953	70,062
Approved Groups			16,130	26,638	19,024	39,340	32,315	36,045	27,136	40,277	31,656
Non-Coop Sub-Total	35,372	34,815	60,732	51,226	40,603	66,688	66,197	64,148	66,343	112,054	125,903
LOWLAND TOTAL	263,588	245,410	322,587	132,544	192,776	187,140	291,118	213,028	129,509	261,854	222,327

Table G8. National coffee production details,1985/86 to 1995/96 (cont.)
Boxes of cherry coffee

	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96
BLUE MOUNTAIN											
Wallenford	26,591	44,602	59,024	23,481	19,848	52,542	75,243	80,454	114,205	196,014	62,073
CIB							35,794	33,173	38,614	65,792	22,933
Approved Groups							39,449	46,981	75,591	130,222	254,392
BLUE MTN. TOTAL	26,591	44,602	59,024	23,481	19,848	52,542	150,486	160,608	228,410	392,028	339,398
TOTAL NATIONAL PRODUCTION	290,179	290,012	381,611	156,025	212,624	239,682	441,604	373,636	357,919	653,882	561,725

Source: Coffee Industry Board
Note: Total production data does not correlate with production data in Table G5.

Table G8b. Changes in national coffee production 1985/86 to 1995/96

jamaica\coffee4b.wb2

	89/90 to 94/95 (%)	92/93 to 94/95 (%)	Change 86-88 to 93-95 (%)	89/90 to 95/96 (%)	92/93 to 95/96 (%)	86-88 to 94-96 (%)
LOWLAND						
Cooperatives						
Catadupa	1.64	1.11	0.75	1.92	1.30	0.82
Central St. Catherine	1.19	1.02	0.43	0.84	0.72	0.38
Central St. Mary	0.49	0.47	0.19	0.14	0.13	0.09
Dariston	6.85	1.86	3.26	7.94	2.15	4.10
East St. Ann	1.86	1.56	0.62	0.58	0.49	0.51
Frankfield	0.72	1.33	0.46	0.24	0.44	0.37
Guys Hill	1.40	0.97	0.34	0.77	0.54	0.27
North Manchester	0.84	1.00	0.57	0.75	0.88	0.55
N/E Clarendon	1.27	0.80	0.55	0.63	0.39	0.38
N/W St. Catherine	1.12	0.73	0.39	0.82	0.53	0.29
St. Elizabeth	0.54	1.17	0.43	0.88	1.89	0.54
South Clarendon	1.06	1.06	0.66	0.55	0.55	0.54
South Manchester	1.11	0.85	0.68	0.53	0.40	0.50
Trelawny	2.19	2.02	0.67	2.11	1.94	0.82
Western St. Andrew	2.35	0.84	0.22	3.08	1.10	0.23
Western St. Ann	0.60	0.91	0.47	0.41	0.63	0.40
Coop Sub-Total	0.98	1.01	0.52	0.63	0.65	0.44
Non-Coop Sources						
CIDCo	1.43	1.49	0.86	1.39	1.46	0.97
Individuals	11.22	4.09	1.76	16.75	6.10	3.06
Approved Groups	2.12	1.12		1.66	0.88	
Non-Coop Sub-Total	2.76	1.75	1.85	3.10	1.96	2.32
LOWLAND TOTAL	1.36	1.23	0.73	1.15	1.04	0.74

Table G8b. Changes in national coffee production 1985/86 to 1995/96 (cont.)

Producer Group	Change 89/90 to 94/95 (%)	92/93 to 94/95 (%)	86-88 to 93-95 (%)	89/90 to 95/96 (%)	92/93 to 95/96 (%)	86-88 to 94-96 (%)
BLUE MOUNTAIN						
Wallenford	9.88	2.44	3.00	3.13	0.77	2.86
CIB		1.98			0.69	
Approved Groups		2.77			5.41	
BLUE MTN. TOTAL	19.75	2.44	6.00	17.10	2.11	7.37
TOTAL NATIONAL PRODUCTION	3.08	1.75	1.44	2.64	1.50	1.64

Table G9. Coffee production trends: Guys Hill jamaica\cfgroup1.wb2

Producer Groups	Boxes of Coffee Produced By Individual Coop Groups							Change 89/90 to 94/95 (%)	Change 89/90 to 95/96 (%)	Change 92/93 to 94/95 (%)	Change 92/93 to 95/96 (%)
	89/90	90/91	91/92	92/93	93/94	94/95	95/96				
HAP Project Coop Groups											
Ben Bow	520	272	757	444	138	271	232	0.52	0.45	0.61	0.52
Bonnett		155	447	226	176	301	171	1.94	1.10	1.33	0.76
Guys Hill	235	190	445	438	39	69	382	0.29	1.63	0.16	0.87
Hart Land	219	327	764	449	262	823	478	3.76	2.18	1.83	1.06
March St.	246	108	329	117	87	48	53	0.20	0.22	0.41	0.45
Phillipsburgh	263	279	503	340		192	247	0.73	0.94	0.56	0.73
Wood Park	316	140	706	757		1563	351	4.95	1.11	2.06	0.46
Average Change								1.77	1.09	1.00	0.69
Non-Project Coop Groups											
Burton	54	98	109	185	14	76	77	1.41	1.43	0.41	0.42
Border Hill					108	236	107	NA	NA	NA	NA
Cedar Valley	474	189	691	234	19	51	30	0.11	0.06	0.22	0.13
Clapham	23	26	101	75	8	91	27	3.96	1.17	1.21	0.36
Ham Walk		44	32	82		17	34	0.39	0.77	0.21	0.41
Jeffrey Town	5	75	157		15	78	46	15.60	9.20	NA	NA
Labrynth	23	13	103	248	2	283	109	12.30	4.74	1.14	0.44
Merry Land	121	52	230	61	1	120	110	0.99	0.91	1.97	1.80
Mango Valley	92	34	44	111		105	64	1.14	0.70	0.95	0.58
Pear Tree Grove	56	99	128	194	6	79	52	1.41	0.93	0.41	0.27
Preston	10	15	125	60	19	210	65	21.00	6.50	3.50	1.08
Three Hills							7	NA	NA	NA	NA
Turnbury	9	2	31	29		1	1	0.11	0.11	0.03	0.03
Watsonville	2	17	90	53		76	13	38.00	6.50	1.43	0.25
Walkers Wood	20	15	62	77	33	103	35	5.15	1.75	1.34	0.45
White Hall	24	51	94	125		200	43	8.33	1.79	1.60	0.34
Average Change								6.87	2.29	0.90	0.41
Total Production	2712	2201	5948	4305	927	4993	2734	1.84	1.01	1.16	0.64

Source: Cocoa Industry Board

Table G10. Coffee production trends: NW St. Catherine

jamaica\cfgroup2.wb2

Producer Groups	Boxes of Coffee Produced By Individual Coop Groups							Change 89/90 to 94/95 (%)	Change 89/90 to 95/96 (%)	Change 92/93 to 94/95 (%)	Change 92/93 to 95/96 (%)
	89/90	90/91	91/92	92/93	93/94	94/95	95/96				
HAP Project Coop Groups											
Bartons	1618	2091	2091	2007	247	1699	736	1.05	0.45	0.85	0.37
Bois Content	881	775	766	441	96	401	159	0.52	0.21	0.91	0.36
Browns Hall	896	757	1620	1446	105	740	550	0.83	0.61	0.51	0.38
Guanoboa Vale	60	247	216	211	6	235	69	3.92	1.15	1.11	0.33
Juan-de-Bolas	406	109	484	603	19	204	459	0.50	1.13	0.34	0.76
Kentish	108	142	451	385	27	276	234	2.56	2.17	0.72	0.61
Lemon Hall	447	434	939	928	58	375	267	0.84	0.60	0.40	0.29
Macca Tree	1437	497	2146	1159	45	658	474	0.46	0.33	0.57	0.41
Mendez	223	181	748	448	3	203	235	0.91	1.05	0.45	0.52
Marlie Hill	1351	1522	2934	2455	234	1756	1484	1.30	1.10	0.72	0.60
Old Works	245	290	593	643	1	194	197	0.79	0.80	0.30	0.31
Snake Hill	731	133	552	414	4	168	333	0.23	0.46	0.41	0.80
Water Mount	454	424	1017	976		437	309	0.96	0.68	0.45	0.32
Wood Hall	131	163	145	173	33	207	99	1.58	0.76	1.20	0.57
Bellas Gate	199	425	463	346	62	505	237	2.54	1.19	1.46	0.68
Connors	489	617	1605	1348	24	1205	607	2.46	1.24	0.89	0.45
Ginger Ridge	718	335	941	875	50	376	735	0.52	1.02	0.43	0.84
Average Change								1.29	0.88	0.69	0.51
Non-Project Coop Groups											
Bamboo Ridge	768	2030	1337	1614	143	1002	414	1.30	0.54	0.62	0.26
Browns Town	145	182	332	285		115	128	0.79	0.88	0.40	0.45
Gordon Town	-	-	-	-	-	-	787	NA	NA	NA	NA
Junction	171	42	314	139	5	91	121	0.53	0.71	0.65	0.87
John-de-Lion	-	-	-	-	-	-	690	NA	NA	NA	NA
Kitson Town	129	264	394	315	33	550	89	4.26	0.69	1.75	0.28
Lluidas Vale	482	428	637	664	20	472	606	0.98	1.26	0.71	0.91
Old Road	105	159	142	134	11	513	137	4.89	1.30	3.83	1.02
Top Hill	296	463	412	525	22	254	240	0.86	0.81	0.48	0.46
Red Ground	61	57	113	71	3	114	33	1.87	0.54	1.61	0.46
Tydixon	23	27	134	101	2	123	17	5.35	0.74	1.22	0.17
Average Change								1.89	0.68	1.02	0.44
Total Production	12574	12794	21526	18706	1253	12873	10446	1.02	0.83	0.69	0.56

Source: Cocoa Industry Board

Annex H **Sub-project data: Matrix of HAP sub-project information, Trees planted, and Trees resuscitated**

Table H1. Matrix of HAP sub-project information Jamaica\matrix2.wb2

PARISH Sub-Project	Start date	Finish date	Open/ Closed	Implmnt. Org. Type	Target # Benfi ciaries	# Benfi ciaries Treated	Target No. Ha.	No. Ha. Treated	Total $J(K) Budget	Total $J(K) Spent	No. Seedlings Planted Target	No. Seedlings Planted Achieved	No. Trees Resuscitated Target	No. Trees Resuscitated Achieved
ST. ANDREWS														
Mammee River	Feb-93	Jun-96	C	N	300	396	120	84.5	4,454	4,285	74,400	84,720	9,600	4,085
Blue Mtn. Coffee	Feb-94	Mar-96	O	CB	220	436	40	69.7			33,100	52,978	60,700	71,688
W. St. Andrews	Jul-93	Sep-96	O	CB	1025	1114	365	1080.0	13,615	11,286	258,000	349,160	184,000	213,628
St. Andrews A.B.S.	Jul-95	Dec-96	O	JAS	500	488	121	81.8	5,295	5,031	115,000	120,641	85,000	11,368
ST. THOMAS														
Trinityville Area Tree Crops	Oct-93	Nov-96	O	RADA	700	723	183	341.7	6,349	6,274	163,565	195,445	42,950	44,794
Plantain Garden Watershed	Jul-94	Feb-97	O	RADA	355	434	123	106.7	5,428	3,906	55,000	107,774	10,000	13,073
PORTLAND														
NW Portland Blue Mtn. Cof.	May-94	Mar-96	O	CIB	600	605	142	271.0	8,462	7,300	138,900	133,101	99,000	101,115
ST. MARY														
Long Road and Evirons	Feb-93	Jun-96	O	NGO	600	751	202	175.0	5,811	4,578	76,560	94,286	27,000	30,363
N. St. Mary	May-94	Jan-97	O	COIB	1000	767	1045	898.9	10,062	8,247	202,900	205,938	205,000	249,366
W. St. Mary	May-94	Dec-96	O	RADA	1000	715	300	120.0	6,313	4,881	184,200	129,944	118,600	8,460
Richmond Cocoa Farmers	Jul-90	Dec-96	C	COIB	800	800	208	204.5	3,485	3,488	170,467	170,467	246,800	246,800
ST. ANN														
E. St. Ann Coffee	Sep-95	Dec-96	O	CIB	300	280	40	54.0	3,548	2,478	72,000	59,508	48,000	42,940
W. St. Ann Coffee	May-94	Dec-96	O	CIB	500	648	120	117.6	6,386	5,570	110,000	119,500	180,000	173,946
MANCHESTER														
Manchester RADA	Apr-89	Dec-93	C	RADA	200	200	92	28.3	774	773	37,810	37,810	12,722	12,722

Table H1. HAP matrix of sub-project information (cont)

PARISH Sub-Project	Start date	Finish date	Open/ Closed	Implmnt. Org. Type	Target # Benfi ciaries	# Benfi ciaries Treated	Target No. Ha.	No. Ha. Treated	Total $J(K) Budget	Total $J(K) Spent	No. Seedlings Planted Target	No. Seedlings Planted Achieved	No. Trees Resuscitated Target	No. Trees Resuscitated Achieved
CLARENDON														
Longville Misc. Tree Crops	Sep-93	Nov-95	C	RADA	200	210	60	81.0	870	869	12,000	6,722	2,050	2,508
Cocoa Coffee Fruit Trees	Jul-95	Dec-96	O	COIB	500	770	210	283.5	8,214	6,798	112,000	181,935	101,000	89,602
Mid-Island	Apr-95	Dec-96	O	RADA	500	422	386.54	386.5	4,930	3,841	135,000	177,011	64,000	89,602
Rio Minho Cocoa Expans.	Sep-88	Dec-92	C	COIB&J	1000	3000	1012	1037.7	9,759	9,090	252,025	252,025	765,800	19,836
Mango Topworking	Aug-88	Dec-92	C	JAS	300	300	N/A	N/A	100	100	1,000	1,000	1,005	1,005
Agroforestry (Shooters)*	Apr-93	Oct-93	C	F	300	295	125	88.0	2,844	2,844	79,108	78,500	109,500	105,000
Windsor	Jul-88	Oct-92	C	JAS	300	243	45	43.3	444	444	15,350	15,350	86,000	86,000
Elgin	Aug-88	Aug-92	C	JAS	200	245	56	54.3	360	360	14,717	14,717	89,500	89,500
Blackwoods	Aug-88	Nov-91	C	JAS	250	256	46	44.5	389	389	36,233	36,200	90,000	90,000
UNITAS	Jun-89	Dec-92	C		200	230	84	85.0	946	940	56,873	56,873	48,927	48,927
Crofts Hill/Kellits	Jan-92	Jan-94	C	R&COIB	700	742	292	234.8	3,627	3,164	79,620	79,600	93,700	93,700
N. Clarendon Proc. Co. **	Jan-91	Dec-93	C-O	JAS	1000	700	375	161.9	2,890	2,776	38,245	38,245	0	0
ST. CATHERINE														
Above Rocks	Mar-89	Mar-93	C	JAS	200	207	84	81.0	582	572	53,915	53,915	11,850	11,850
Agroforestry (Harkers Hall)*	Apr-93	Oct-93	C	F	300	305	125	85.0	See Sh ooters		79,108	80,100	109,500	110,000
Giblatore	Sep-91	Jan-94	C	RADA	300	300	125	117.4	1,628	1,103	49,111	4,911	200	200
Bermaddy	Aug-91	Dec-93	C	RADA	300	300	125	115.4	1,992	1,520	28,489	28,489	0	0
Guys Hill Coffee	Jun-90	Jun-93	C	CIB	300	300	83	84.0	1,596	1,144	86,120	86,120	329,600	329,600
MINAG/IICA	Nov-88	Dec-93	C		168	168	56	54.7	11,312	10,511	153,773	153,773	17,688	17,688
W. St. Catherine Coffee	Jun-90	Jun-93	C	CIB	500	612	125	102.0	2,228	1,706	62,345	62,345	118,759	118,759

Key to abbreviations :

*	Same project, straddles bundary	CB	Commodity Board
**	Field activities closed as	R	RADA
	Factory is upgrading	J	JAS
COIB	Cocoa Ind Board	N	NGO
CIB	Coffee Ind board	F	Forestry dept.

HILLSIDE AGRICULTURE PROJECT
NEW PLANTS UPDATE TO THE
MONTH OFSEPTEMBER 1996

	SUB-PROJECTS	ACKEE	AVOCAD	BREAD FRUIT	COCOA SEED LINGS	COCOA STAKE	PASSION FRUIT	COCONU	COFFEE	GUAVA	JACK FRUIT	LUCEAN	MANGO	NUTMEG	PAWPAW	SOUR SOP	SWEET SOP	SHADE PLANTS	TIMBER	MISC. FRUIT TREES	TOTAL
PHASED-OUT																					
1.	BLACKWOODS				9483	500		4000	20800		100			450					900		36233
2.	ELGIN	200	500		9217	500		2600	1500										200		14717
3.	WINDSOR	500	300		7000	200		2000	3500		100			250					1500		15350
4.	R. M. C. E. P.	3000			204300	4000		37250	400					75	3000						252025
5.	ABOVE ROCKS	50			22550			9500	15600							550			5500	165	53915
6.	MANCHESTER RA	400							35850			60				400			800	300	37810
7.	UNITAS	1200	20	60	3600	1960		10	39450			1000							5800	3773	56873
8.	GUYS HILL COFFEE				3960	46950		1760	32450			100							900		86120
9.	N/W ST. CATHERINE							4780	57565												62345
10.	ST. MARY COCOA	2019	137		109995	38400		5140						1040		972				12764	170467
11.	AGRO-FORESTRY	1290	219		60798			19666	39606		15	854	700	610		213			33953	292	158216
12.	MINAG/IICA	762	1276		50467	1086		35831	35679				1060			600	362	0	5500	21150	153773
13.	MANGO-TOP												1000								1000
14.	GIBLATORE	150	472		1300			3013	41427				140		1603	781			25	200	49111
15.	BERMADDY	25	70		5304			2374	20040				168			8			100	400	28489
16.	N. C. P. C.	8250					1660	7000		850			1012	48	18075	1350					38245
17.	KELLITS/CROTFS	470			67050			6000											3500	2600	79620
18.	LONGVILLE	2079	500	70				910			380		1064			1303			161	255	6722
	TOTAL PHASED-O	20395	3494	130	555024	93596	1660	141834	343867	850	595	2014	5144	2473	22678	6177	362	0	58839	41899	1301031

	SUB-PROJECTS	ACKEE	AVOCAD	BREAD FRUIT	COCOA SEED LINGS	COCOA STAKED SEEDS	PASSION FRUIT	COCONU	COFFEE	GUAVA	JACK FRUIT	LUCEAN	MANGO	NUTMEG	PAWPAW	SOUR SOP	SWEET SOP	SHADE PLANTS	TIMBER	MISC. FRUIT TREES	TOTAL
ON-GOING																					
19.	LONG ROAD	596	890	20	25551	0	0	15419	27265	0	56	0	3471	1902	0	5373	134		11385	2280	94342
20.	MAMMEE RIVER	2001	369		985			682	75943		108		426		100	604	9	0	2460	1033	84720
21.	WESTERN ST. AND	3547	1475		159525			12410	145895		513			2180		5431			17632	552	349160
22.	TRINITYVILLE	5680	264	0	1500			6750	152287		18		1108	524		1124		23664	1678	846	195443
23.	NORTH ST. MARY	1700	1039	0	96495			10129	77825				8339	4270		1245			3950	946	205938
24.	WESTERN ST. MAR	624	487		1300			4300	119048				779	78		209	145		1165	809	128944
25.	WEST ST. ANN	2						1200	115580		2					3			2500	213	119500
26.	N.W. PORTLAND	393	500		410			4257	102325				1085	145		219		4100	19567	100	133101
27.	BLUE MOUNTAIN							1028	49750							200			2000		52978
28.	PLANTAIN GARDE	881	23		700			4903	97804		51		775	393		366			1478	400	107774
29.	MID-ISLAND	11818	294	705				2847	129450		386					2810	864	8120	12667	7050	177011
30.	MAVIS BANK	532	50					500	116680				50	200		270	59	792	1383	125	120641
31.	WOOD HALL	674	480		22080			13386	124690				3622	475		1326	242		13252	1708	181935
32.	EAST ST. ANN	658							57500							358			625	367	59508
	TOTAL	29106	5871	725	308546	0	0	77811	1392042	0	1134	0	19655	10167	100	19538	1453	36676	91742	16429	2010995
	GRAND TOTAL	49501	9365	855	863570	93596	1660	219645	1735909	850	1729	2014	24799	12640	22778	25715	1815	36676	150581	58328	3312026
	PERCENT OF TOT	1	0	0	26	3	0	7	52	0	0	0	1	0	1	1	0	1	5	2	100
	PREVIOUS TOTAL	48458	9236	645	847620	93596	1660	219435	1609095	850	1713	2014	23516	11759	22778	24444	1746	33584	142918	57114	3152181
	THIS MONTH TOTA	1043	129	210	15950	0	0	210	126814	0	16	0	1283	881	0	1271	69	3092	7663	1214	159845

Without September data for W. St. Mary and E. St. Ann

HILLSIDE AGRICULTURE PROJECT
TREES RESUSCITATED UPDATE TO THE
MONTH OF SEPTEMBER 1996

	SUB-PROJECTS	ACKEE	AVOCAD	BREAD FRUIT	COCOA	PASSION FRUIT	COFFEE	GUAVA	JACK FRUIT	MANGO	NASE-BERRY	NUTMEG	OTAHEIT	SOUR SOP	SWEET SOP	OTHER	TOTAL RESUS
PHASED-OUT																	
1.	BLACKWOODS				24000		66000										90000
2.	ELGIN				66000		23500										89500
3.	WINDSOR				58000		28000										86000
4.	R. M. C. E. P.				765800												765800
5.	ABOVE ROCKS				7000		4850										11850
6.	MANCHESTER RADA						12722										12722
7.	UNITAS				3927		45000										48927
8.	GUYS HILL COFFEE				164800		164800										329600
9.	N/W ST. CATHERINE						118759										118759
10.	ST. MARY COCOA				246800												246800
11.	AGRO-FORESTRY				185000		34000										219000
12.	MINAG/IICA				13228		4390			70							17688
13.	MANGO-TOP									1005							1005
14.	GIBLATORE				200												200
15.	BERMADDY																0
16.	N. C. P. C.																0
17.	KELLITS/CROTFS HILL				93700												93700
18.	LONGVILLE	182	47	42	250					421			7	77	1482		2508
	TOTAL PHASED-O	182	47	42	1628705	0	502021	0	0	1496	0	0	7	77	1482	0	2134059

	SUB-PROJECTS	ACKEE	AVOCAD	BREAD FRUIT	COCOA	PASSION FRUIT	COFFEE	GUAVA	JACK FRUIT	MANGO	NASE-BERRY	NUTMEG	OTAHEIT	SOUR SOP	SWEET SOP	OTHER	TOTAL RESUS
ON-GOING																	
19.	LONG ROAD	574	260	225	28300		600		105	1015				834		572	32485
20.	MAMMEE RIVER	38	44	4	283		3606	25	5	18			30	31		1	4085
21.	WEST ST. ANDRE	388	212	388	181923		59110	206	43	259		49	247	176		52	243053
22.	TRINITYVILLE	782	198	320	13040		29140		18	268			79	265		1930	46040
23.	NORTH ST. MARY	4992	1138	571	182246		4100		180	5104		479		2355		11881	213046
24.	WESTERN ST. MA	225	194	203	3612		3639		17	127			115	103		225	8460
25.	WEST ST. ANN	21	13	22			173855		4				4	15	0	12	173946
26.	N.W. PORTLAND	66	25	55	1950		98923		3	34			44	21		15	101136
27.	BLUE MOUNTAIN	93	87	129			71237		48	178		2	36	50			71860
28.	PLANTAIN GARDE	53	10	53	7738		5035		7	20			52	68		37	13073
29.	MID-ISLAND	134	74	128			19500									200	20036
30.	MAVIS BANK	42	20	16			11259		11	9			8	16	0	21	11402
31.	WOOD H	555	142	299	34531		57420		19	123	4		71	100		11	93275
32.	EAST ST. ANN	39	33	42			42775		7	12			19	13			42940
	TOTAL ON-GOING	8002	2450	2455	453623	0	580199	231	467	7167	4	530	705	4047	0	14957	1074837
	GRAND TOTAL	8184	2497	2497	2082328	0	1082220	231	467	8663	4	530	712	4124	1482	14957	3208896
	PERCENT OF TOT	0	0	0	65	0	34	0	0	0	0	0	0	0	0	0	100
	PREVIOUS TOTAL	7856	2404	2194	2058128	0	1064926	231	419	8283	4	38	670	3782	1482	13719	3164136
	THIS MONTH TOTA	328	93	303	24200	0	17294	0	48	380	0	492	42	342	0	1238	44760

Without Septemb data for W.St.Mar and E.St.Ann

Annex I: Potential Future Activities

The evaluation team identified several potential future activities based on HAP or lessons learned from the HAP evaluation:

1. Buffer Zone activities

USAID has on-going activities which support the Blue and John Crow Mountain National Park in the same vicinity as some of the HAP sub-projects. Many such park programs have developed buffer zone activities to help the people living in the area of the park and to reduce pressure on the park. The HAP activities could be easily adapted to provide the basis for a buffer zone program which would both serve to improve watershed protection and increase incomes of people living around the park. Some HAP sub-projects have been close enough that it is relatively certain that HAP activities and technologies would both work and be acceptable to farmers in those areas. Much of the buffer zone area is Blue Mountain zone and can benefit from the incentive offered by the high price of Blue Mountain coffee. Given the high profit potential of Blue Mountain coffee, the program might well be able to operate with reduced input subsidies. The evaluation team has little knowledge of park area or the National Park program and related activities. It is not in a position to assess whether there is a need for buffer zone activities or whether there are already plans under some other program to address these needs. But logically there would seem to be a very close fit between HAP type activities and the types of activities which buffer zone programs try to develop.

2. Environmental support for Coffee Board activities

A Coffee Board representative mentioned to the evaluation team that the Board would like to continue HAP type activities under its own auspices. However, the rapid development of coffee production and acreage, particularly in the Blue Mountains, is often not done in a manner which protects and conserves the environment. The evaluation team heard a number of statements which criticized the Coffee Board for focusing on increased production so strongly that watershed protection does not always receive the attention which it should receive. It would be interesting to explore the possibility of USAID developing an environmental program to work in conjunction with the Coffee Board activities. Potentially the Coffee Board might help fund a good portion of the agricultural activities and USAID would ensure the watershed protection and other environmental issues receive appropriate attention. Potentially, such activities could target buffer zone areas around the Blue and John Crow Mountain National Park. USAID could in this manner provide some people and park friendly buffer zone activities, focus on environmental issues, and leverage its funding with whatever funding is provided by the Coffee Board. USAID might also find itself in a position to help temper the pollution of mountain streams by coffee processing mills.

The evaluation team does not know if the Coffee Board is serious about continuing HAP type activities with its own funding. If it is, a collaboration of this nature would certainly be worth exploring.

3. The Robert Lightborn Secondary School Agricultural Farm

The Robert Lightborn school has been a partner of the Trinityville HAP sub-project since the sub-project was implemented. The school has an agricultural farm which was implemented as part of its curriculum to promote agriculture as a viable enterprise for young people to undertake after completing their education. The evaluation team found this school farm to be an excellent example of a viable method to interest young Jamaicans to remain in their farming communities and at the same time have access to information to develop sustainable farming systems.

The school's farm covers approximately 15 acres of land and has established an impressive program for their students to learn about sustainable agriculture through a "theory and practice" approach. The students have developed an impressive citrus orchard which has soil and water conservation structures, intercropped coffee and banana plantations which are terraced with contour barriers, and they maintain poultry and swine production units as part of their animal science class for cash and compost. The students maintain a seedling nursery using bio-organic practices for all their citrus, coffee, and fruit crop needs. Two and one half acres of coffee had just been planted with seedling from their own nursery. All construction materials are produced from the students' forestry class projects. There is also a large vegetable garden which uses raised beds and bio-organic materials as compost for soil fertility enhancement. Throughout the school's farm, all tree and food crops are labeled with the scientific and local names of the species.

The evaluation team felt that this effort by the secondary school was the best effort which has been seen during the TDY to promote Jamaican youth to remain in their rural communities and continue farming activities. If this model of a school farm were replicated in all of Jamaica's parishes and supported to provide appropriate training for school staff and educational materials, it could have a major impact on reducing rural-urban migration and to increase sustainable agricultural practices in hillside agriculture.

Training should be provided to the secondary school staff responsible for not just the day-to-day technical operation of maintaining the farm's crops, but also to be able to maintain accounting procedures in order to determine the costs and benefits of this type of farming system. This ability to show young farmers the economic benefits of appropriate farming practices could prove to have a major impact on influencing youth to become involved in agriculture for their livelihoods.

Educational materials on sustainable agricultural systems, accounting systems, alternative cropping systems, and the like are not available to the school staff. The farm director felt that visual aids such as posters, overhead projectors, and/or slide projectors would help them to

influence their students by showing them examples of sustainable agricultural systems that are used elsewhere in the Caribbean and other similar agro-ecological environments similar to Jamaica.

I feel that an evaluation of the existing secondary schools in Jamaica would be desirable and could lead to the development of an effective plan to promote agriculture as an appropriate option for young Jamaicans to pursue for their livelihoods.

4. The Co-operative Model

The description of this model is taken from notes obtained during an interview with Father Jim Webb and Mr. Raymond Ramdon at the St. Mary's Rural Development Project (SMRD). St. Mary's began the SMRD well before the HAP sub-project was implemented at Long Road. The sub-project added the component of promoting perennial tree crops to SMRD's on-going efforts to organize a farmer's cooperative to market their existing crops. The evaluation team found that the most sustainable sub-projects seemed to be associated with either an on-going farmers co-operative or had begun one in the sub-project area. Therefore, it was felt that this model might be of interest to USAID or other donors who are focusing on hillside agriculture projects.

Long Road is back in the hills of eastern St. Mary's. A few years ago the hillside farmers started to get together to identify their problems and look for solutions. One of their largest problems was finding a market for their crops and other marketable goods. So in 1991, they formed a co-operative. This co-op found markets in Kingston and leased a truck to carry their goods there once a week. Later, the co-op decided that it would be more cost-effective to buy their own truck. They did this and then sold it to their driver on a lease-buy contract so that it is in the driver's interest to maintain the truck. The contract assures the co-op that the driver will transport their goods to Kingston on a regular schedule, and the driver is then free to look for other clients when the co-op does not need transport.

The co-op is a business organized to provide a service to its members. These members are local hillside farming families that are shareholders in the co-op. The fact is that it is a business which must run on sound business principles such as balancing its books, providing services (finding markets, transport, etc.) with reliability and efficiency, and being accountable to its members. SMRD project staff have tried, with more success in some cases than others, to organize other co-ops on the Long Road model. These successes and failures have led the SMRD staff to define a strategy for an effective co-op structure which is meant to serve the hillside farmers in St. Mary's.

The SMRD co-operative model has two levels of co-ops. An umbrella co-op would be established with experienced local staff who have expertise in developing markets; conducting all the accounting aspects relative to collection of member farmer goods, sale, and re-imbursement; and

other related activities needed to keep the co-operative system running efficiently. The second level would be a number of farmer co-ops that are responsible for the actual collection of the goods, providing adequate supplies of all crops which are in demand to satisfy the Kingston markets, and to maintain tool pools and other appropriate credit and/or saving schemes which are desired by the member farming households. These second-level co-ops would pay a fee to the umbrella co-op for the accounting and other bookkeeping needs of the business.

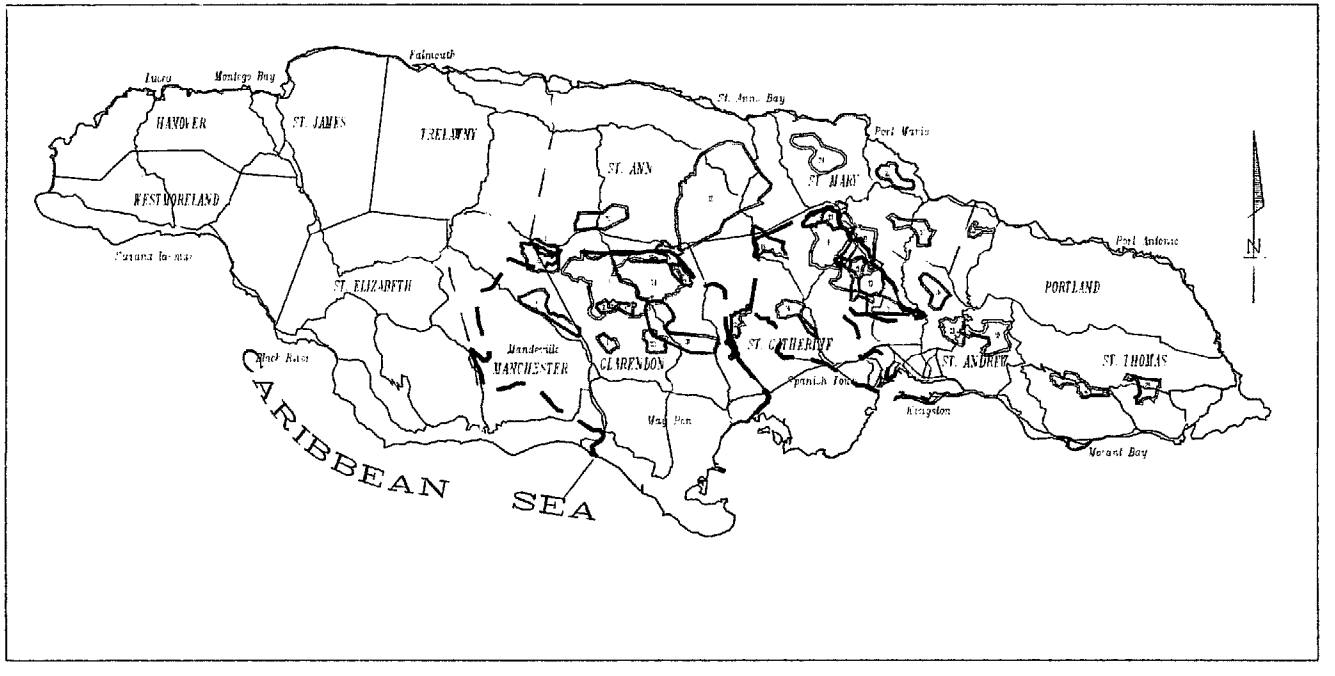
Father Webb has developed a draft proposal for this co-op model which would provide more of the details than can be elaborated here. The fact that the co-ops are essential to marketing annual crops and perennial tree crops in most of rural Jamaica makes it clear that without some workable and sustainable marketing strategy, promoting the increased planting of and production from perennial tree crops will not be sustainable.

k/caribbea.fil/8000.020/anex_i.fut/02/10/97

HILLSIDE AGRICULTURE PROJECT AREAS

Scale 1:1400000

JAMAICA



1	[illegible]
2	WINDSOR (JAS)
3	[illegible]
4	MANGO TOP-WORKING
5	[illegible]
6	MIXED/PCA
7	ARGYLL ROCKS
8	MANCHESTER HAIRA
9	UNIAS OF JA
10	AGRO FORESTRY (ST. CATHERINE)
10	AGRO FORESTRY (CLARENDON)
11	ST. MARY COCOA SUPPORT
12	NORTH WESTERN ST. CATHERINE
13	CUPS HILL COFFEE
14	SOUTH CLARENDON PROCESSING
15	SERVATION HAIRA
16	[illegible]
17	CROPS HILL/KELLITS
18	LONG ROAD & PENNEGAS
19	MARRITT RIVER
20	WEST ST ANDREW
21	[illegible]
22	[illegible]
23	NORTH ST MARY
24	[illegible]
25	PLANTAIN GARDEN
26	HIGH ST COFFEE RENTS
27	NW PORTLAND COFFEE RENTS
28	WEST ST ANN COFFEE RENTS
29	MID ISLAND TREE CROPS
30	MANN PARK
31	SOUTH WEST & HUMPH DO"
32	EAST ST ANN RENTS

Roads

Parish Boundary

County Boundary

Coast line

Project Area Boundary

Watershed Boundary

[illegible]

CLASSIFICATION

PROJECT EVALUATION SUMMARY (PES) – PART I

Report Symbol U-447

1. PROJECT TITLE	2. PROJECT NUMBER	3. MISSION/AID/W OFFICE
Hillside Agriculture Project	532-0101	USAID/Jamaica

4. EVALUATION NUMBER (Enter the number maintained by the reporting unit, e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY)

☒ REGULAR EVALUATION ☐ SPECIAL EVALUATION

5. KEY PROJECT IMPLEMENTATION DATES	6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION
A. First Obligation FY ____ C. Final Obligation Expected FY ____	A. Total $13,346,000 B. U.S. $10,000,000	From (month/yr.) Feb 1987 To (month/yr.) September 1996 Date of Evaluation

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

(List problems and/or unresolved issues requiring these items needing further study. Identify any conditions which will require AID/W or regional office action should be taken. Type of assessment, e.g., diagnostic, EvAL, FIO, which will provide detailed request.)

	A. NAME OF OFFICER RESPONSIBLE FOR ACTION	B. DATE ACTION TO BE COMPLETED
This will be the scheduled final evaluation of the HAP project. Its focus is on lessons learned from the HAP experience. The project is in the process of closing out. The primary task remaining is to finish the close out process.	Jane Ellis	Feb. 28, 19

9. INVENTORY OF DOCUMENTS TO BE REVIEWED PER ABOVE DECISIONS

- ☐ Project Paper
- ☐ Financial Plan
- ☐ Logical Framework
- ☐ Project Agreement
- ☐ Implementation Plan e.g., CPI Network
- ☐ FIO/T
- ☐ FIO/C
- ☐ FIO/P
- ☐ Other (Specify) N/A
- ☐ Other (Specify)

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

- A. ☐ Continue Project Without Change
- B. ☐ Change Project Design and/or ☐ Change Implementation Plan
- C. ☐ Discontinue Project N/A

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

12. Mission/AID/W Office Director Approval
Signature
Typed Name
Date

AID 1330-18 (3-78)

Project Evaluation Summary (PES) - Part II

13. Summary

The Hillside Agriculture Project is closing after a 10-year LOP. It has successfully promoted perennial tree crops to increase production, farm income and watershed protection. It successfully delivered inputs and extension services to and increased the production of 18,000 hillside farms and treated the equivalent of over 16,000 acres. It effectively managed and delivered inputs and exceeded the acreage targets set in the project design. As a project with a narrowly focused objective to promote perennial tree crops and improve watershed protection, it has been successful. It has increased production and income among those farmers who participated, and even among farmers in areas where sub-projects were active. It has been less successful with regard to achieving sustainability, but then it was not designed to be sustainable.

Many of the individual technologies promoted by the Hillside Agriculture Project are technically successful at increasing production and will continue to be used by participating and non-participating farmers after the project ends. But the economic viability of the technology packages in the absence of 100 percent subsidies of material inputs has not been proven. Tree planting and good tree management which implies the use of fertilizer and pest control are relatively expensive investments. Farmers are not likely to plant many trees or even maintain them properly unless the venture is quite profitable.

The fact that most local management committees became rapidly non-functional after sub-project close out would seem to indicate that the project approach is not institutionally sustainable, except where the project worked through pre-existing community based institutions. It was successful in using community participation to facilitate project implementation but did not achieve a situation where the local community takes responsibility for identifying its own priorities, constraints and development opportunities.

14. Evaluation Methodology

This evaluation relies heavily on previous evaluations and assessments of the Hillside Agriculture Project, and the evaluation team's subjective impressions of the project. The project established an excellent system for monitoring project inputs and activities but did not monitor farm level production and productivity to provide data which would allow an objective assessment of project impact. Tropical Research and Development, Inc. (TR&D) funded the evaluation team from October 22 through November 27. Team members were John Lichte, Joanne Feldman Lawrence, Bill Fiebig, Thomas Armor, and Marlene Tomlinson. John Lichte served as team leader.

The evaluation team interviewed USAID representatives, Hillside Agriculture Project management staff, members of the Project Coordinating Committee, members of the commodity

boards, officials in the Ministry of Agriculture, representatives of other agencies with an interest in the project or rural development, and other donors. While many visits were made by only a portion of the team members, the team met frequently to exchange experiences and discuss issues which had been raised. The interview schedule was planned together so team members had a chance to express their information needs with regard to different sources. A short interview guideline was established to help orient the team and insure that each interviewee was asked about project impacts, factors contributing the success of activities/components/sub-projects, and lessons learned. The team also visited a sample of 10 field level sub-projects, chosen to provide a cross-section of the 32 field level sub-projects supported by the Hillside Agriculture Project.

The evaluation team presented preliminary results at the annual Hillside Agriculture Project retreat to allow feedback from the Hillside Agriculture Project staff. Many of the lessons learned reported here were articulated by the Hillside Agriculture Project staff and sub-project managers and validated by the evaluation team and other project participants and observers.

15. External Factors

Hurricane Gilbert and changes at the national level have had the most impact on the project. The project design focused on planting perennial tree crops to increase production and watershed protection. But the productivity of many existing tree crop stands, and farm income, was seriously diminished by Hurricane Gilbert. Much of the existing inventory of perennial trees needed rehabilitation to return to production. Refocusing an important portion of the project's efforts on resuscitation allowed the Hillside Agriculture Project to impact poor farmers with existing tree crops who did not have additional land available, or could not afford the investment of planting new stands, even when the project provided all the material inputs. Many farmers relied on the income from these existing trees, rehabilitation was relatively cheap and income was realized much more rapidly than when seedlings had to mature before a crop could be harvested. For these reasons, resuscitation was a priority for many farmers who might not be able to plant additional stands. This helped align farmer and project objectives in a manner which might not have been obtained if the project had remained focused on new plantings alone.

Marketed production in the cocoa industry has stagnated and declined significantly in 1995/96 because farmers did not feel that the cocoa was worth picking at the price being offered. In fact the price of cocoa would barely pay for the cost of harvesting, and a portion wasn't paid until months later, so it was not available to pay harvest labor. The industry and observers feel that the Hillside Agriculture Project has helped to significantly increase the production potential, but that potential will not be realized until the industry finds a way to increase payments to farmers.

Coffee production has trended higher over the 10 year life of the Hillside Agriculture Project, but marketed production from lowland coffee cooperatives, with which the Hillside Agriculture Project has collaborated for much of its work, has declined by 60 percent. It is not clear why production would have declined drastically for this small-farmer, lowland sub-sector, or even that

it has declined that significantly. Farmers complain about the fact that the price for lowland coffee is only about ½ the price of Blue Mountain coffee, but lowland coffee prices have increased somewhat faster than Blue Mountain coffee prices over the last few years. With the liberalization of coffee marketing there are now private sector coffee processors. It may be that these private sector coffee processors have made important inroads into purchasing coffee from local farmers and that their production is no longer accurately reflected in the statistics from the Coffee Industry Board. It may also be that a portion of the lowland coffee is transported to the Blue Mountains for sale as the higher value Blue Mountain coffee.

16. Inputs

The Hillside Agriculture Project's primary inputs were the material inputs for the production of perennial tree crops and the extension services which trained farmers in the use of production and resuscitation techniques promoted by the project. The sub-projects successfully delivered the material production inputs, but many found that this was an area that constrained the level of impact that could be achieved. Initially, seedlings were often not available in the quantities necessary at the times needed from government and commodity board nurseries. Many sub-projects promoted the development of private sector nurseries to help reduce this constraint. The availability and cost of transportation of material inputs to the farmgate was also often a limiting factor for some farmers. Only a few of the most successful sub-projects succeeded in helping farmers overcome this constraint.

The other primary input was knowledge of rehabilitation and improved tree management techniques. The Hillside Agriculture Project provided more than 7000 training events, most of which focused on tree crop production and management technology and techniques for improved erosion control. The refocusing of project activities on resuscitation following Hurricane Gilbert reduced the need for material inputs and emphasized the diffusion of simple techniques which most farmers had the means to implement. This reduced emphasis on material inputs helped the project avoid one of the primary constraints which it originally encountered.

17. Outputs

The Hillside Agriculture Project planted about 4400 acre equivalents of cocoa and coffee, 6700 acre equivalents of diverse fruit trees, and 2150 acre equivalents of timber species. (Most of the trees are planted at lower than suggested densities over larger areas in multiple cropping systems. Acre equivalents identifies the number of acres which would be affected at densities suggested by the commodity boards or other sources of extension recommendations.) In addition to over 13,000 acre equivalents planted, the project resuscitated another 6400 acre equivalents of cocoa and coffee. This far exceeds the acreage target of 6000 acres in the project logframe. The logframe does not suggest a number of target beneficiaries, but 18,000 direct beneficiaries has exceeded common expectations.

The logframe sets targets of 20 workshops/seminars and 1000 persons trained. The project held monthly meetings of sub-project staff over the 10 year period and did some element of training for trainers at each. The number of farmers trained in improved techniques is not available, but project records show more than 7000 field days, group meetings and demonstrations held to promote various production and soil erosion control techniques. Even without knowing the number of participants it is obvious that the project significantly exceeded targets for training outputs.

The logframe sets targets of increasing coffee and cocoa yields by 50 and 100 percent respectively. The evaluation team was not able to find data which would allow an assessment of what changes in yield or production have been at the farm level. Farmers interviewed almost universally indicate yield increases of 50 to 200 percent, typically about 100 percent. However the evaluation team has not been able to objectively verify these responses. A mixed pattern of production changes at the national and regional level make it difficult to use this data as a proxy for changes in the Hillside Agriculture Project.

18. Purpose

The specific purpose of the Hillside Agriculture Project is to increase productivity and expand acreage of both export oriented and domestic use perennial crops in selected watersheds. The increase in agricultural production is targeted to create more productive employment of hillside residents, resulting in increased disposable income.

The project identified technological packages which have proven to be technically viable for increasing the production of perennial tree crops. The degree to which these packages, or individual techniques are economically viable is less well established. The fact that all of the necessary material inputs for planting perennial tree crops were provided at no cost to the farmer means that the economic viability has not been thoroughly tested. It is doubtful that participation would have approached the levels achieved, if farmers had been required to pay for the inputs. The economic and institutional sustainability of Hillside Agriculture Project activities is seriously in question. The capacity and willingness of farmers to make such investments without large input subsidies has not been seriously tested.

The Hillside Agriculture Project has provided many elements of a successful strategy/model for improving hillside agriculture. These include its institutional location and organization, its flexibility and the strategy of financing many individual sub-projects, and the success of simple technologies and techniques to improve perennial tree crop production. A few of its most innovative and successful sub-projects demonstrate the need for marketing services for products other than the traditional export crops, improved input supply, and strategies for sharing costs, enforcing savings on the part of farmers, and promoting the institutional development of local institutions such as coops which can provide the production, input supply and marketing services needed by farmers. The Hillside Agriculture Project had a very narrow focus and was not

designed to be holistic and address all of the needs of hillside agriculture. It did very little with the very important non-tree domestic food crops. Farming practices used with these crops are considered to be the major source of soil erosion on the hillsides, but no effort was made to improve the production of, and reduce the environmental degradation caused by, these crops. One of 32 sub-projects was organized around a food processing company. Otherwise only two or three of the most successful sub-projects which developed cooperative marketing services have been able to make contractual arrangements for marketing produce.

Farmers did participate in the adoption and dissemination of appropriate cropping patterns and techniques. However they had little involvement in identifying priorities, constraints and opportunities which would be addressed by the project or planning ways to respond to the needs identified. Most of this was pre-ordained by the narrow focus of the project design. While the project definitely increased production above what it would have been without the project, it is not clear that marketed production in many project areas now exceeds what it was prior to the start of the project. The project has helped maintain marketed production in the face of stagnant or decline production trends in cocoa and lowland coffee production.

19. Goal/Subgoal

The Hillside Agriculture Project was designed to contribute to the larger goal of increasing the economic well-being of the residents of the hillside lands in a manner that promotes rational land use patterns.

More recently, as the USAID Mission changed to a strategic planning approach, the Hillside Agriculture Project has supported the strategic objective of increased participation for equitable economic growth by increasing the incomes of subsistence producers. It also contributes to the Mission objective of improved environmental management and protection through expansion of tree crops that provide permanent ground cover, through the extension of inexpensive soil conservation techniques such as gully plugs and contour stone, wood or grass barriers, and through the promotion of safe use of agricultural pesticides. While the project's initial emphasis was focused on improving farm incomes, in recent years an orientation towards the mitigation of the environmental impacts of hillside farming has been strengthened.
The production declines in the cocoa and lowland coffee sub-sectors indicate that the conditions under which a project operates may be as or more important than the effects of the project activities.

20. Beneficiaries

The Hillside Agriculture Project provided subsidized material inputs to 18,000 families operating small farms on Jamaican hillsides. It provided extension services to many more. With an average of 3.5 to 4 members per family, this indicates direct beneficiaries totaling 60,000 to 70,000. There were also many indirect beneficiaries although no numbers are available. Project efforts to

improve a local institution such as a coop, develop supply stores, tool pools and other input delivery services and marketing services helped all of the participating coop members, not just those who received subsidized production inputs. The effect for all of the direct and indirect farm beneficiaries was to increase productivity and income. Data is not available to assess the extent of this productivity and income change. To the extent that these are predominantly small (<5 acre) farms, the project also improved the equality in income. While most farmers try to use predominantly family labor, many have to hire labor to accomplish tasks on a timely basis. No numbers are available on increased employment, although many farmers complain that the availability and price of hired labor is a problem.

21. Unplanned Effects

The resuscitation of pre-existing perennial tree crop stands was not something planned in the project design. It came about in large part as a reaction to the destruction caused by Hurricane Gilbert. The decision to refocus the project at least in part on rehabilitation of existing stands was very intentional and advantageous to the project and its beneficiaries. Although the project design mentions the promotion of tree crops outside the traditional export sector, the degree of interest in production of these fruits has been greater than originally expected. Also, much of the increase stems from cutting back or rehabilitating existing trees which are already part of the mixed cropping system. Perhaps one of the bigger surprises has been the importance to farmers of increasing production from existing tree resources as opposed to investing in planting additional trees.

The project has been able to provide significant support to established local institutions, such as the commodity board or other coops, and to the commodity industries in terms of increased volume and economies of scale. Some observers indicate that the cocoa industry was in danger of dying after Hurricane Gilbert without the revival spearheaded by the Hillside Agriculture Project. The project has provided tree crop related extension services in areas which would have otherwise received very little in the way of extension services.

The project strategy called for the use of a community participation approach. The project involved local communities in the selection of beneficiaries and the management of delivering inputs, providing extensions services and training. However, local communities were not involved in identifying project objectives and project design. The local management committees have generally stopped functioning shortly after a sub-project closed out. The lack of involvement of the local communities outside the limited focus of project implementation has apparently prevented these institutions from broadening their vision to take responsibility for identifying community priorities, constraints and development opportunities.

22. Lessons learned

This final evaluation has focused on identifying lessons learned. The following list of 23 lessons learned is taken from the executive summary:

1. A large project with a clear single focus lends itself very well to multiple sub-projects that are designed and implemented by the people most familiar with the local conditions to be faced by a sub-project. A concerted effort needs to made to assure that local farmers are included and participate in this needs assessment and design process. Project management should be supported and encouraged to be responsive and flexible in dealing with emergent conditions and opportunities.

2. A large, multiple level, and decentralized effort such as the Hillside Agriculture Project does require independence from traditional Ministry implementation mechanisms which can be slow and cumbersome, and subject to arbitrary decisions about allocation of resources. An effective linkage to the obvious Ministry can be maintained through a Project Coordinating Committee (PCC).

3. Direct funding from USAID to the project will avoid delays and assure transparent accountability.

4. The PCC model is very effective for linking a complex project with USAID and host government officials without letting the project become 'captured' by a single host government agency. It is a good forum for resolving issues and sharing responsibilities between the donor and the recipient government while preserving a single line of accountability for project management. The membership should be kept small and directly relevant to the needs of the project --and should be reviewed periodically to assure this.

5. A project is unlikely to achieve additional objectives added mid-term, when no specific plan or program is developed to attain those objectives and no human or financial resources are dedicated to addressing them.

6. A project team dedicated to a set of objectives is unlikely to redirect funding and effort to new objectives which it deems less important than the original project purpose.

7. Sustainability should be defined for any project in its design phase. When the desired sustainable impact is clear, project priorities and resources should be aligned in the earliest phases of the project toward achieving that sustainability at project's end.

8. The integration of perennial trees into hillside farming and natural resource management systems makes an effective contribution to controlling erosion and providing watershed protection.

9. Hillside farmers in Jamaica have developed very diverse mixed cropping systems as a risk aversion strategy in response to fluctuating prices, market availability, and climatic changes.

10. To properly evaluate the best types of perennial tree cropping systems for hillside farmers, projects need to monitor farmer activities; establish social, economic, and environmental targets; and collect, aggregate, and present data to quantify what impacts have occurred.

11. The integration of a diverse mixture of perennial tree species into hillside farming systems along with improved management practices helps to increase production and minimize risk for limited resource farmers.

12. Hillside agricultural development activities should focus on the farmer's whole farming system, promoting annual and perennial crop production under mixed cropping patterns.

13. Hillside farmers will have a greater incentive to adopt better management practices and continue to use them under mixed cropping systems when it is likely that significant benefits will occur relatively quickly from the annual and fruit tree crops, and the perennial crops can be harvested as time and labor resources are available.

14. Without an effective information management system which facilitates the collection and use of reliable data to determine the results and impacts of hillside agricultural programs, it will be difficult to develop appropriate and economically-viable mixed cropping systems which are of interest to small hillside farmers.

15. The conditions under which a project operates may be as important to the success and sustainability of project activities as anything which the project does itself. Changes in these conditions can make it very difficult to assess the impact of the project.

16. It appears doubtful that the large input subsidies were either economically justified or necessary to attract the participation of hillside farmers. Many Jamaican farmers (although not necessarily the resource poor) are willing to participate in programs to invest in and increase the production of perennial tree crops even if the program requires a financial contribution from the participants.

17. The use of large grant subsidies for a very limited range of activities may be incompatible with the promotion of community participation in decisions about their priorities for development.

18. Farmers are willing to contribute financially to have access to marketing and input delivery services. Production activities are not likely to be successful unless those services are assured.

19. The sustainability afforded by community participation has a cost. A project needs to work with existing local institutions or devote resources to facilitate community development. The time and resources devoted to community development will delay and/or reduce the other outputs which the project can be expected to achieve.

20. While a project with a very limited focus may be more efficient in pursuing that specific objective, adhering to that strict focus may limit its effectiveness as a means of promoting community participation.

21. Knowledge and consideration of social characteristics can help projects identify potential unintended effects of policies, and help decision makers reduce the inadvertent exclusion of women and other groups from participation in project benefits.

22. The Hillside Agriculture Project's narrow focus on crop production and limited orientation towards marketing and post-harvest activities, caused it to miss an opportunity to increase the involvement of women in areas in which women traditionally have primary responsibility.

23. Parents play a key role in determining the circumstances which allow youth to participate in agricultural programs and promote their interest in farming. Like adults, youth need to receive sufficient economic benefits from their efforts that agriculture becomes an alternative worth considering, access to resources, and some independence in decision-making.

23. Special comments or remarks

The project did an excellent job of facilitating the development of 32 field level sub-projects and managing this portfolio of projects to achieve the purpose of promoting perennial tree crops on Jamaica's hillsides. It also was successful in delivering production inputs and extension services to beneficiaries to increase the farmer's production. These production increases have not necessarily translated into production increases at the regional and national level because of

changes and negative trends in the cocoa industry and the lowland cooperative coffee industry sub-sector.